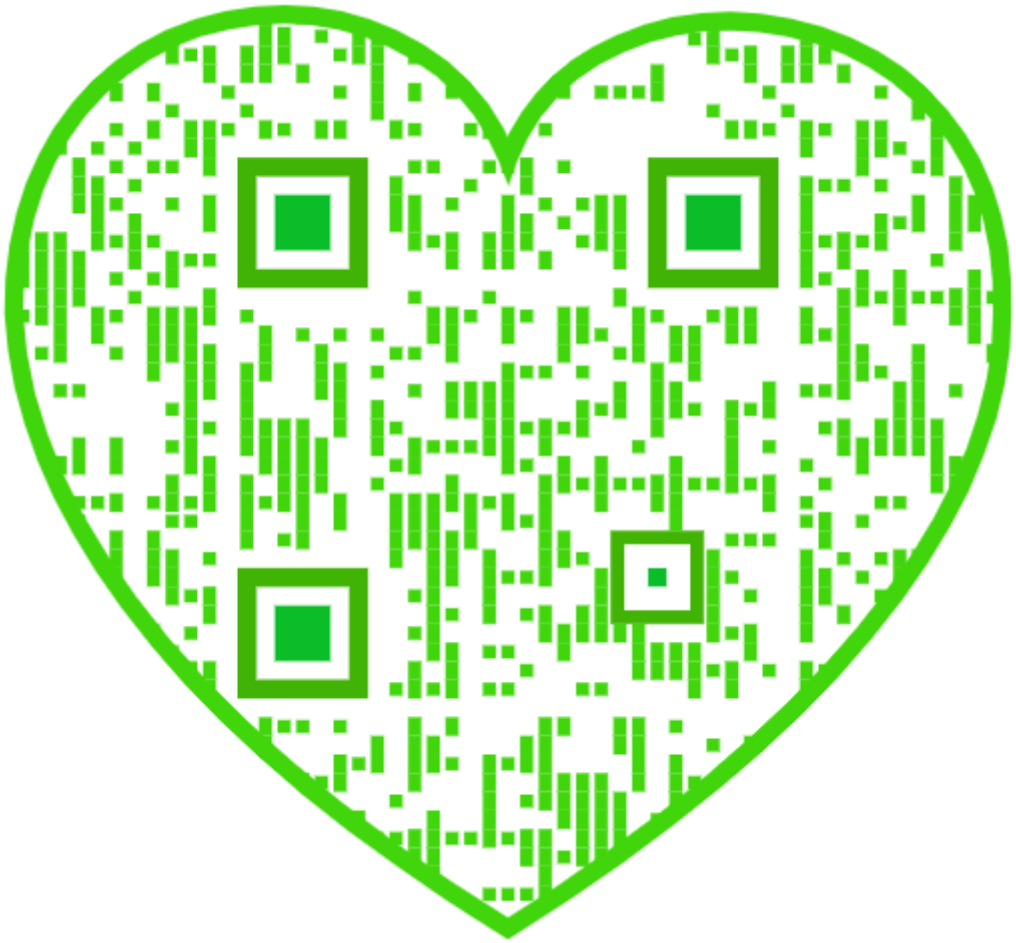

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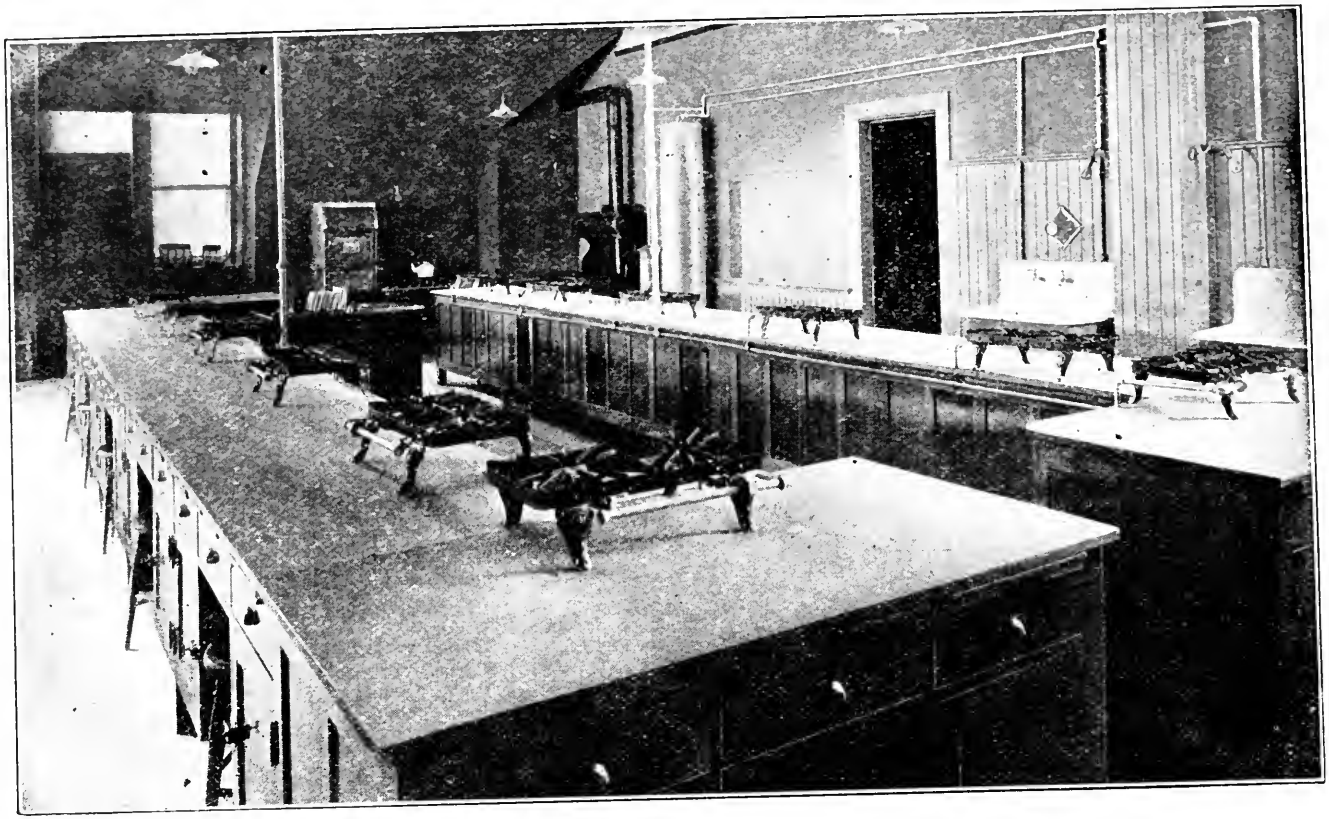

A Domestic Science equipment for 24 girls; hollow square arrangement.

DOMESTIC SCIENCE

PRINCIPLES AND APPLICATION

A TEXTBOOK

—FOR—

PUBLIC SCHOOLS

BY

PEARL L. BAILEY

FORMERLY SUPERVISOR OF DOMESTIC SCIENCE AND DOMESTIC ART
IN THE SAINT PAUL PUBLIC SCHOOLS

REVISED

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PREFACE

DOMESTIC SCIENCE in public schools, to be of greatest value, must give the pupils a practical knowledge of foods and the principles which underlie their preparation for the table, and at the same time train the pupils to apply the principles intelligently.

This textbook is arranged to meet the needs of schools having a two-year course in Domestic Science, and an effort has been made to present the fundamental principles, together with their application, in a simple, natural sequence that is adapted to the needs of the large majority of public and private schools.

A text of this kind does away with the keeping of elaborate notebooks on the part of the pupils, saves for more important things the time used in dictating notes, and makes the work more permanent and uniform throughout.

The arrangement of the subject matter by lessons does not necessarily limit the course to 64 lessons. If the students are old enough, additional reading may be used to supplement the subject matter, and several recipes are given under each application to afford plenty of practical work for classes having more than one lesson each week. The usual length of the class period is 1½ hours, and one recipe is all that can be done well in that time.

The course begins with a preliminary lesson for organization and for acquainting the pupils with the kitchen, utensils, and the general instructions for working and care of equipment. It is not intended that all the instructions

contained in this lesson be given at one time, but may be referred to from time to time. The application exercises under this lesson should be given.

Owing to the length of the cooking period, it is necessary in most cases to start the cooking process before considering the principles. Definite assignment of work and proportionment of materials, with explanation sufficient for beginning the work, should precede each exercise, and the main discussion or recitation must accompany or follow the application. Students are most interested in the performance of an experiment or a cooking process, and when the practice precedes the recitation they learn to think and do for themselves, and therefore get a better understanding of the theory.

The food principles form the basis for the lessons, which are arranged to deal first with the simpler food materials, and the progression to the more complex food combinations is gradual and practical.

The recipes included in this text have been gathered from various sources and adapted to the course in school cookery as here outlined, and have been found to be both economical and reliable. Portions for an average family are given in each recipe, and for convenience in class-room work the basis for two girls working together is also stated.

The average cost per capita of the lessons as here given, according to the present-day prices, approximates 2 to 3 cents a lesson.

The working out, by the pupils, of the accurate amounts for the small rules on the basis for two affords good practice and drill and tends to fix the table of measures more firmly in mind. It is a great mistake for teachers to make the computations for the class. The aim is to train pupils to think for themselves and do for themselves. Better

spoil a dish in the making than deprive the pupils of the experience of doing the actual work themselves. It is not necessary for pupils to memorize recipes: only general proportions and methods are essential.

It is well to introduce the lesson on digestion early in the course, whenever time permits. Knowledge of the meaning of digestion and absorption is necessary for a full understanding of the food values given with each subject, and should be referred to often.

No demonstration lessons are outlined, but demonstration, by the teacher, of various steps involved in a lesson is frequently necessary. When given it should immediately precede the work by the class. This is especially true of the omelet lesson, as well as in the lessons involving the manipulation (kneading, shaping) of dough, rolling out of pastry, cookies, doughnuts, etc.

Marketing trips are of great value to a class, and the inspection of flour mills, dairies, canning factories, etc., arouses interest and adds greatly to the value of the work. Several such excursions should be made, if possible.

The table service, menu building and marketing lessons afford a splendid course to round out the work and afford practical application of the knowledge acquired during the entire course. By this work relative food values and the cost of foods are established more firmly in mind, and the school and home are brought into closer relation.

The lesson on emergencies and "first aid" places information in the hands of the student that is valuable to both boys and girls, and can be given at any time that opportunity affords.

Invalid cookery and diet is often made a separate course and, combined with home nursing, makes a very practical and interesting one. Diets and dishes suitable for all

occasions are given in this text, together with a few invalid recipes not classified under other subjects. Girls should be able to prepare most invalid rules after a two-year course of training as here outlined.

It is sometimes advisable to change the order of lessons to suit the price and season conditions, as, for example, the egg lessons. If, however, these are placed further on in the text, at least some demonstration work in eggs should be given to precede quick breads, where eggs are called for.

Girls frequently lose interest in the meat lessons where the sequence is continuous. This result may be avoided if the lessons on gelatine jellies, leftovers, and a review lesson on quick breads are brought in following the beef or lamb lessons.

This edition has been revised to include material on the cold pack method of canning vegetables and fruits, 100 calorie portions of common foods, tables and lists of foods with their ash constituents, together with many changes in recipes to conform to the more thorough application of the principles involved and to the unusual economic food conditions now prevailing, when it is advisable to use butter and flour substitutes in all recipes as far as possible.

The tables of food composition, food requirements, etc., quoted throughout this book are taken from bulletins of the United States Department of Agriculture.

PEARL L. BAILEY.

Saint Paul, Minnesota,
December, 1920

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Domestic Science: Principles and Application

FIRST YEAR

PRELIMINARY LESSON

THE COOKING UNIFORM. HOUSEKEEPERS' DIRECTIONS

EACH girl must be provided with a complete uniform. This consists of a white apron, white cap, hand towel, bag, and holder.

MAKING THE UNIFORM

The cooking apron is made of white India linen or lawn. The amount for each apron depends on the size of the girl. Measure the length of the dress and add 14 inches for the hem and for growth; take twice the length for the skirt and allow one yard more for the straps and bib.

Divide one of the lengths for the *skirt* lengthwise through the center. Sew a half width to each side of the whole width with selvages together. Hem sides with ¼-inch hem, and the bottom with a 3-inch hem. Gather apron for belt.

The *bib* is a square piece 8 by 8 inches or 9 by 9 lengthwise of cloth, lengthwise of the apron. Turn 1¼ inches of hem along top; hemstitch.

The *straps* are 4 inches wide and long enough to reach from the belt in front across to the belt in back; set in bib to the straps in front, and over-hand straps shut.

The *belt* is made of two pieces 2 inches wide and the length of the waist measure plus 1½ inches for the lap. Sew the belt to the bib portion first and then to the skirt.

The *pocket* is 5 by 4 inches and is backstitched to the right side of the apron convenient to the hand.

The cooking cap is made of the same material as the apron. Cut a circle of material 18 inches in diameter. Cut a band 4 inches wide and the length of the size of the head straight around the forehead. Allow 1 inch for shrinkage. Gather the top in quarters, and sew band together at the ends; quarter band, and sew band to the cap. Hem down on the inside. The seam of the band is the center of the back.

The hand towel is made of ¾ yard of white huck toweling, or blue and white glass toweling. Turn ½-inch hems at both ends; hem with damask hem. Set in ¼-inch tape, 4 inches long, in the hem at one end, with which to button the towel to the belt.

The holder is made of two pieces of white cotton cloth 6 by 6 inches. For padding, use two thicknesses of white cotton flannel 5 by 5 inches. Pin and sew pieces together, overhand the outer cover over the lining. Inset a tape 30 inches long at one corner; make a loop at one end of tape, to button the holder to the belt.

The bag is made of ⅔ yard of blue percale. Use full width of the material. Make a 2-inch hem in the top, with a 1-inch casing. Make two white tape draw-strings each one yard. Mark each piece plainly.

DUTIES OF HOUSEKEEPERS

Two members of the class may be assigned at the beginning of each lesson to perform the housekeeping duties. These girls may be called Housekeeper No. 1 and Housekeeper No. 2, each serving a section of the class. The students on the immediate right of the girls appointed make double portions in cooking, for the benefit of the housekeepers.

Housekeeper No. 1, Section I, performs the following duties:—

1. Bring out the supplies for Section I.
2. Pass dish cloths and towels.
3. If ovens are to be used, get ovens for Section I.
4. Wash out half the towels that are soaked. Housekeeper in afternoon classes put day's towels to soak.
5. Straighten the shelves in the pantry.
6. Wipe off the oilcloth with a damp cloth.
7. See that each desk in Section I is supplied with soap, flour, salt, and matches.
8. Fill the pitchers of Section I with cold water.
9. Collect garbage from utility pans at the close of lesson.
10. Put away supplies at the close of lesson.
11. Sweep floor around Section I.
12. Clean the sink, soap dish and sink strainer at sink No. 1 when the class is through.
13. Arrange the curtains evenly at the close of the lesson.
14. Set the garbage can out for the janitor. See that the can is scalded each week and set in the sun and air.

Housekeeper No. 2, Section II, performs the following duties:—

1. Bring out the supplies.
2. Pass dish cloths and towels.
3. Place gas ovens, if a baking lesson.
4. Rinse towels washed by Housekeeper No. 1.
5. Hang towels on a clothes rack to dry.
6. Wipe off and polish the gas range.
7. Clean the ice box; empty any dishes that may need attention. (Note.—Keep milk and butter in the lower part of the box.)
8. Clean all ovens and tea kettles.
9. On Friday, scald out the ice box and wipe off the shelves. See that the trap is clean.
10. See that each desk is supplied with soap, flour, salt, and matches.
11. Pass drinking water to Section II.
12. Collect the garbage from utility pans.
13. Put away all supplies.
14. Sweep floor around Section II.
15. Clean sink, soap dish, and strainer of sink No. 2.
16. Dust the moldings of the room, all ledges, and furniture.
17. Afternoon class close and lock the windows.

INSTRUCTIONS TO HOUSEKEEPERS

Dust and Its Dangers.—There are two kinds of dust, living and lifeless. For the most part the dust we find in our homes or schools is made up largely of earth or other matter in such small particles that it can be carried by the wind. It is present everywhere. Carried in this lifeless dust we find a living, invisible dust, called *germs* or *microbes*. These germs are the smallest living plants, and are so small

that it takes a powerful microscope, enlarging them at least fifty times, to make them visible.

There are three classes of these little microscopic plants; namely, *molds*, *yeasts*, and *bacteria*. Some of these, as you already know, are very useful to us, such as the yeast plant, in making bread. Others produce dangerous poisons that cause disease.

What Hastens Germ Growth.—Things necessary for the growth of most molds and bacteria are dark, damp, unclean places, and food and warmth. Can you name some such places?

For this reason it is always necessary to try to keep our houses and ourselves as clean as possible in order to destroy or to prevent the growth of these germs.

What Stops Germ Growth.—Anything that destroys these living plants, or micro-organisms, is called a *disinfectant*. There are two kinds of disinfectants:—

1. *Physical*, or *natural*, *disinfectants*; as, sunshine and heat.

2. *Chemical disinfectants*, or those that act chemically upon the bacteria; as, carbolic acid, formaldehyde, strong acids and alkalies.

Some substances prevent the growth of germs, and are called *antiseptics* and *preservatives*. Some of these are borax, salt, peroxide, sirups, and many others. We shall learn more about some of these later.

Dust or dirt, then, is not only objectionable to look upon when it is about the floor, the furniture, and persons, but one never can tell what germs it may contain that may do us harm if they enter our bodies. Certain kinds of bacteria in the body produce diseases, such as diphtheria, typhoid fever, and tuberculosis.

At all times let us each observe the rules of cleanliness, and avoid any habits that hinder the having of clean, wholesome food, a clean house and school to live in, and a healthy mind and body.

CLEANSING AGENTS

(*a*) **Water** is the most important cleansing agent, for it dissolves more substances than any other liquid.

Water is *hard* or *soft*. The hardness depends upon the amount of calcium (lime) or other salts it contains. Soft water is best for cleansing, since neither soap nor dirt dissolves readily in hard water.

To soften water, certain softening agents are added, such as borax, sal soda, ammonia, potash or lye. Temporary hard water can be softened by boiling.

(*b*) **Cleaning powders** are of two kinds,—those that are mechanical and those that are chemical in their action. *The mechanical powders* contain minerals that assist in cleaning by producing friction. Among these are:—

(1) White sand, for scouring iron and wood.
(2) Bath brick, for scouring steel knives.
(3) Rotten stone, for copper, brass, and tin.
(4) Whiting, for silver, aluminum, and brass.
(5) Commercial preparations on the market, which are very good for cleaning and come in very convenient form ready for use.

The chemical cleaning agents are chiefly alkalies, which are most important in the removal of grease. Any alkali unites with grease to form a compound soluble in water, like soap. The chemical substances used for cleaning are:—

(1) Sal soda, which is very strong, but is best for general use. It is cheap and is the basis of most washing powders, which cost many times their value. To use sal

soda, dissolve one pound in a quart of water over the fire; then cook, bottle, and label. Use a little when needed.

(2) Ammonia, which is not as strong as sal soda, and is used chiefly in laundry work, but is very good for general cleaning.

(3) Kerosene. This is useful for cleaning polished woods, which alkalies would injure, and may be used in many other ways.

(*c*) **Soap** is a combination of an alkali (soda or potash) with a fat. Describe the old-fashioned way of making soap.

There are hard and soft soaps: hard soap is made with soda. The harder the fat used, the harder the soap. Soft soap is made with potash instead of soda.

Action of Soap.—When used with water, soap dissolves and unites with any grease it touches, and loosens and washes away the dust and dirt.

CARE OF EQUIPMENT

Care of Dishcloths and Towels.—Have two enamel-covered pails in which to soak the towels. Use enough warm water to cover them well, and add two tablespoonfuls of cleansall or soap solution. Cover, and let stand over night.

To Wash Towels.—Use warm water, good soap, and a wash board. Rub each towel well until all the stains are removed. Put the towels in clean, hot suds on the stove to scald; bring slowly to a boil and boil 10 minutes; remove from the fire, rinse the towels in plenty of clean water, wring well, shake out, and hang evenly on the rack to dry. Place in the sun and air, if possible.

To Remove Stains.—*Iron rust* is easily removed by dipping the spot into a solution of oxalic acid and then rinsing at once with clear water. Dissolve one teaspoonful of

oxalic crystals in ⅛ cup of boiling water for the acid solution.

Apply lemon juice and salt to the spot in the direct rays of the sun until rust disappears. This takes longer.

Ink.—Use a solution of oxalic acid for ink, the same as for iron rust. The crystals dissolve more quickly in boiling water, and the stain disappears more quickly. Rinse thoroughly in clear water after application of acid, or the texture of the material will be injured.

Sweet or sour milk will often remove ink stains. Let spot soak in milk several hours, apply more milk, until spot disappears. Rinse the material.

Blood is best removed by soaking the stain in tepid or lukewarm water; later rub with soap, and wash out.

Cocoa stains.—First wash in cold water and then pour boiling water through them.

Coffee stains are removed by placing at once over a basin and pouring on boiling water while the stains are fresh. The force of the water aids in loosening the stain.

Fruit stains require the same treatment as coffee stains. Alcohol softens and dissolves fruit stains, and does not injure the material.

Grass stains are dissolved by alcohol or camphor and may then be washed out with clear water.

Mildew is a plant mold that grows on the fiber of materials. It develops on clothes when they are damp for some time in warm weather. If mildew stains are old, they will not come out.

Strong lemon juice and salt put on the spot and exposed to the sun for several days will remove light spots of mildew. A bleaching agent, as chloride of lime, may be used, but is very hard on the fiber of the material. Or, wet the spots

with strong soapsuds and powdered chalk and put in the sun for many hours.

Plumbing. Traps — All fixtures, like sinks, wash basins, closets, tubs, etc., are connected with a system of pipes with the house drain, which carries off all waste matter to the sewer in the street. Figure 1 shows an approved system of house plumbing. Notice the size of pipes used and their relation to one another and to the fixtures.

A *trap* is a bend in a pipe sufficient to retain enough water to prevent the passage of poisonous gases back through the pipe into the room. Each fixture must have a trap located in the waste pipe close to the fixture, and the house

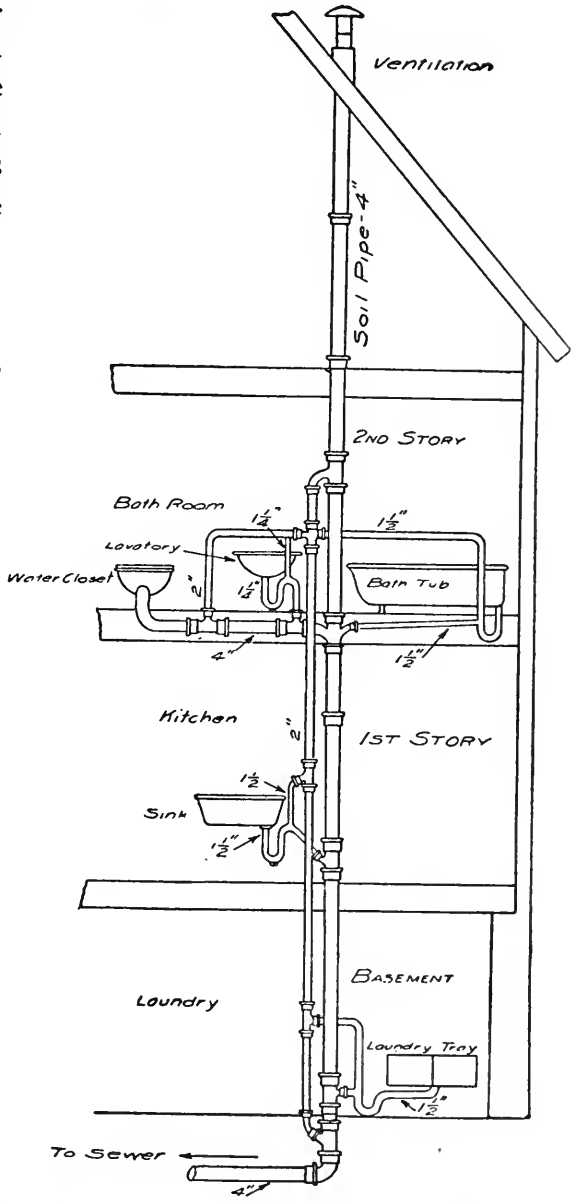

Fig. 1. A plumbing system for a house, showing arrangement of fixtures, traps, and pipes. (Mo. Eng. Exp. Sta. Bul.)

sewer pipe must be provided with a trap near the street sewer.

Of the many kinds of traps the most commonly used are the S trap and the bottle or pot trap. The S trap (See illustrations) is perhaps the most satisfactory for most purposes, for it does not contain much water, flushes readily, and does not easily get out of order.

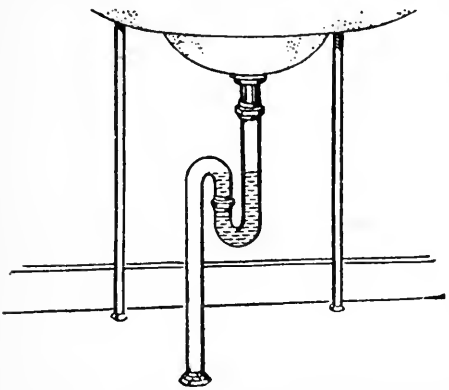

Fig. 2. A trap. The enclosed water prevents poisonous sewer gas from entering the room.

A trap may become ineffective because: 1. It may not have a deep enough bend to retain sufficient water to form a complete seal.

2. It may be clogged by foreign matter, like lint, hair, grease, etc. This will break the seal.

3. The water may have evaporated from the trap, if the fixture has not been used for some time. To prevent evaporation, pour sufficient oil in the pipe to cover the top of the water. When houses are to be closed for a time, this precaution is necessary.

Inspection.—All plumbing should be inspected frequently, and should be so constructed as to make this easy. All joints should be air-tight, and all traps should be supplied with means for cleaning. Faulty plumbing is too often the cause of serious illness.

Note.—Carefully inspect the plumbing in your home and school. Notice where the traps are located.

Care of the Ice Box.—Keep the ice box perfectly clean. See that the waste from the ice is properly carried off. It should drain into an open end of a trapped drain-pipe. See

that the trap is open and works correctly. Keep a brush for cleaning out the trap. Scald out the ice box and trap once each week with hot soda or borax water.

Wipe the ice box dry, and always wipe off the shelves as soon as anything is spilled over them.

Do not put hot food into the ice box; never put food with strong odors into the ice box. Keep milk bottles covered and keep the milk and butter in the lower part of the box, for they absorb odors readily. Do not put unnecessary dishes into the ice box. Set the food away in clean dishes, and in as small dishes as possible.

Do not put anything on the top of the ice box; it clutters up a room and makes it harder to keep things neat and clean.

Care of the Sink.—Sinks with open plumbing are best; but even the best need constant care. In selecting sinks, avoid those with wood around them. Good porcelain sinks, with rim and drain board of the same, are the best and the easiest to keep clean. Iron sinks are very hard to care for.

To remove the rust from iron sinks, at night rub all over with mutton fat and in the morning rinse well with hot suds.

Keep a sink strainer in the sink and pour all waste liquids through it. Do not put garbage into the sink strainer; put it into the garbage can. Sink strainers are for liquids only. When through work, empty the strainer, wash in hot soapsuds, wipe dry, and hang up.

Once each week pour a strong solution of sal soda (about ½ cup soda to two quarts water) down the pipes. Flush the sinks frequently with plenty of hot soapsuds and boiling water. When through work always leave the sinks perfectly clean. Wash them with hot water, using Dutch cleanser or sapolio to remove any stains or grease. Rinse well and wipe dry. Kerosene cuts any grease readily. Rinse well after using.

Never hang utensils or dishcloths around the sink. Only the soap dish and sink strainer need be kept there. Never hang anything under the sinks. Wash and rinse all sink cloths and hang in the air to dry.

Care of the Garbage Can.—Each day place a clean newspaper in the can. This is easily removed and all the contents burned, buried, or carried away. Put only solid materials in the can. Liquids must first be drained off. The can must be kept perfectly fresh. Scald and scrub out the can thoroughly each week, and set in the sun and open air. Keep can covered when garbage is in it.

Care of the Pantry.—Closed cupboards are much better than open shelves, but are not always available.

Cover the pantry shelves with oilcloth. Tack it down firmly over the edges of the shelves. Oilcloth is easily wiped off, and is durable material. Plain white paper may be used if oilcloth is too expensive. Renew the paper frequently.

Put like dishes together. Keep all spices and staple things together.

Keep food supplies in covered jars properly labeled. Do not leave supplies in sacks.

Never arrange supplies in more than two rows. This saves time and prevents confusion.

When the last of anything is used, report the fact at once to the instructor, or make a note of it.

Prepare bread crumbs from all dry pieces of bread; roll and sift and keep in covered jars ready for use.

Watch canned goods and jellies and report any that appear to be spoiling.

Care of the Table.—When the dishes are all washed, clean the table by scrubbing with a brush dipped in hot water and then in Dutch cleanser or in scouring soap.

Use little water; scrub thoroughly with the grain of the wood. Rinse well and wipe dry as possible with a cloth wrung out of clear water.

See that the edges of the table are kept clean and dry.

Clean under the stoves thoroughly.

Ammonia or borax will remove grease spots. Spread on the spots and let stand for a few minutes; then rinse with cold water. Hot water dissolves grease and drives it into the wood.

Care of Floors and Woodwork. *Hardwood Floors.*—A long-handled soft brush is best for sweeping polished floors. A broom with a soft cover made of cotton flannel sewed into a bag to fit the broom and tied on with tapes, is a good substitute for the brush.

Use little or no water on hardwood floors. Brush dry. Sweep from the outside of the room towards the center; be sure corners and baseboards are well dusted.

Use short strokes of brush or broom, and keep it close to the floor to prevent raising a dust. Gather dust into a small spot and take up with brush and dustpan; burn, if possible, at once. A little oil on the brush or broom bag collects the dust together better.

Sweeping Ordinary Floors.—Sweep dry in the same way as with hardwood floors, using an ordinary broom.

Scrubbing.—Use plenty of hot soapsuds and a stiff brush. Do not wet a large surface at a time. Scrub with the grain of the wood; then rinse thoroughly and wipe dry with a cloth wrung out of clear water.

Avoid wetting baseboards, furniture, and doors.

Grease spots on unfinished wood may be removed by covering with borax, letting stand over night, and then rinsing off with clear water.

Carpets.—To sweep, tear old newspapers into small pieces, dampen them, and sprinkle over the carpet. Use a stiff broom and sweep as in method for hardwood floors, taking short strokes to avoid raising dust. A carpet sweeper may be used in the center of the room after sides are brushed.

To brighten the carpet, put a few drops of ammonia into a little warm water, dip a cloth into it, wring out, and rub over the carpet after it has been swept.

Woodwork.—After sweeping and when the dust has settled, wipe off the woodwork carefully, using a soft cotton cloth. Hemmed cheesecloth dusters are preferable. Gather the dust into the folds of the duster, not stirring the dust up in the room, and shake duster out of doors. Dust higher objects and woodwork first.

Chemically-prepared dust cloths are for sale and are good for most woodwork, but must not be used on mahogany furniture.

Care of Brooms, Brushes, and Dust Cloths.—*Brooms.*—In using a broom alternate first one side and then the other, so that it wears evenly. Clean broom off after sweeping, making it ready for use again. Always hang broom up; do not allow it to rest on the bristles. The broom should be washed in good warm suds every week to keep it in good condition.

Brushes.—Brushes should be cleaned well after each using. Later they may be washed in cold water, but great care must be taken not to wet the glue which fastens the back of the brush. Dry thoroughly.

Dust cloths.—Wash dust cloths frequently in hot soapsuds, scald, rinse in clear water, and dry in the sun and air.

Explain why this precaution is always necessary.

LESSON 1

LIFE ESSENTIALS—AIR, WATER, FOOD. FURTHER WORKING DIRECTIONS

THREE things are essential to life: (1) air, (2) water, and (3) food. In addition, most forms of life need sunlight and a favorable temperature.

AIR

Air is the most immediate need of the body, since we can live but a few minutes without it.

Composition of Air.—*Pure air* is composed mainly of two gases, oxygen and nitrogen, in the proportion of 1 part of oxygen to about four parts of nitrogen. A certain amount of water vapor in the air makes it easier to breathe. *Impure air* may contain, in addition to nitrogen and oxygen, harmful gases, dust, and other impurities.

In dwellings the harmful gas is usually carbon dioxide, which is noticeable when the room is poorly ventilated.

Sources of Carbon Dioxide Gas.—Carbon dioxide gas is formed by the union of carbon and oxygen in a process called *oxidation*. This takes place in—

(1) All burning of carbon material.
(2) Decaying vegetable and animal life.
(3) The process of respiration.

In the latter process the oxygen in the air passes through the thin walls of the lungs into the blood, which carries it to all parts of the body. The union of this oxygen with the carbon in the cell tissues forms carbon dioxide as a waste product, which in turn is carried back by the blood to the lungs and given off.

Ventilation.—How may pure air be brought into a room and the impure air sent out? How is your home ventilated? How is your school ventilated?

The natural means of ventilation are doors, windows, cracks, and chimneys. Special ventilating systems, flues, etc., may be spoken of as the artificial means of ventilation.

WATER

Water ranks next to air as a supporter of life. Pure water is a liquid, clear, odorless, colorless, and almost tasteless.

Composition.—Chemically pure water is composed of 1 part oxygen to 2 parts of hydrogen. The flavor of drinking water is due to the mineral salts and carbon dioxide gas dissolved in it.

Sources.—(1) Rain. (2) Surface water, as from rivers, brooks, lakes, ponds. (3) Ground water, as from wells, open and artesian, and some springs.

Uses.—Water has many uses. It enters into all plant and animal life. It constitutes about three-fourths of the weight of the body.

(*a*) Uses in the body:—

1. It quenches thirst.
2. It aids in regulating the body temperature.
3. It aids digestion, since it forms a part of all the digestive secretions of the body, and acts as a solvent; that is, dissolves most substances and reduces them to a condition to be of use to the body.
4. It acts as a carrier. It enters into the formation of blood, which carries food to the various parts of the body. It also carries off waste materials.

(*b*) Uses out of the body:—

1. In power production.
2. In transportation.
3. In cleaning.
4. In cooking.
5. For plant growth.
6. Other uses.

Kinds.—(1) *Soft water*, as already explained.

(2) *Hard water*, temporary and permanent.

(3) *Mineral water*, which is water containing a comparatively large percentage of certain minerals, such as soda, sulphur, and iron, and is valuable for medicinal purposes.

Daily Requirement.—An average person requires about two quarts of water a day. This is supplied by vegetables, meat, and other food, as well as by beverages.

Temperatures.—Water freezes at 32° Fahrenheit (which is zero on the Centigrade scale).

Water simmers at 185° F.

Water boils at 212° F., or 100° C.

Impure water cannot always be detected by color, taste, or smell. One should always know the source of water before using it. Water is contaminated in many ways, but the most common are—

1. In open wells, by surface water and foreign substances.

2. By having water supply too close to outbuildings or sewage disposals. Water is purified more or less by filtering through the earth, but this does not necessarily remove harmful bacteria, especially when the filtering distance is short.

3. By carelessness in diseases.

To Purify Water.—Water from springs and artesian and bored wells is usually pure.

1. Boiling will purify most water, but this destroys

the flavor as well as the bacteria. Pouring boiled water from one jar to another partially restores its flavor.

2. Filtering water through stone filters is quite effective. The filters must be thoroughly cleaned frequently or they will be worse than none. In city systems water is often filtered through large sand beds to purify it. Small cloth filters fastened on the faucets *do not* purify the water.

Cautions in the Use of Water.—1. Do not use water left standing in open vessels.

2. Draw off the first water from pipes before using any. Water takes up the lead of the pipes when allowed to stand in them for any time.

3. Do not drink water in the dark.

4. Use freshly boiled water for cooking purposes, never that from the hot-water faucet.

5. Keep all pitchers and water jars washed clean and free from the lime deposits that accumulate on the bottom and sides.

FOOD

Food is anything which taken into the body builds and repairs the tissues or furnishes heat and energy.

Foods contain many elements, but the most important are those which enter into the composition of the body; as, oxygen, hydrogen, nitrogen, carbon, calcium, phosphorus, and others. Where have you found these elements before? Some of them are more abundant in certain foods than in others, and therefore foods perform different functions in the body. For this reason we have foods classified according to their composition and function.

Classification of food.—(*A*) **Organic foods,** of animal and vegetable origin, include—

1. *Proteins* which include—

a. Albumin, as in the white of egg.

b. Casein; as, milk curd.
c. Fibrin; as, lean meat.
d. Gelatin, as found in sinews and bones.
e. Extractives, as in the juices of meats.
f. Gluten, as contained in wheat.
g. Legumin, as contained in peas and beans.

2. *Carbohydrates*, which include—
   a. Starch, as contained in potatoes and cereals.
   b. Sugar; as, cane, beet, and fruit sugars.
   c. Cellulose, the fruit and vegetable fiber.
3. *Fats*, including—
   a. Animal fats; as, butter, lard, fat meat.
   b. Vegetable oils; as, olive oil, cottonseed oil.

(*B*) **Inorganic foods,** or those not having animal or vegetable origin, include—

4. *Mineral matter*, as found in the ash of foods.
5. *Water.*—Water is usually not thought of as a food; it is used in tissue building, but it does not give heat or energy.

Composition and Functions of the Food Classes.—**Proteins** contain nitrogen, carbon, oxygen, hydrogen, sulphur, and often phosphorus.

Because they contain nitrogen, proteins build and repair tissues, and are called nitrogenous or tissue-building foods. The protein of the body, as contained in the muscles, blood, and other tissues, can be built up only from the protein of food. Proteins may also be used in the body to produce heat and energy. But carbohydrates and fats, especially the former, are much cheaper as a source of heat and energy, and are much more easily used for this purpose in the body. If less protein is eaten than is required, the protein of the body itself will be consumed. If more protein is eaten than is needed for tissue building, the excess is thrown off as waste, the process forming

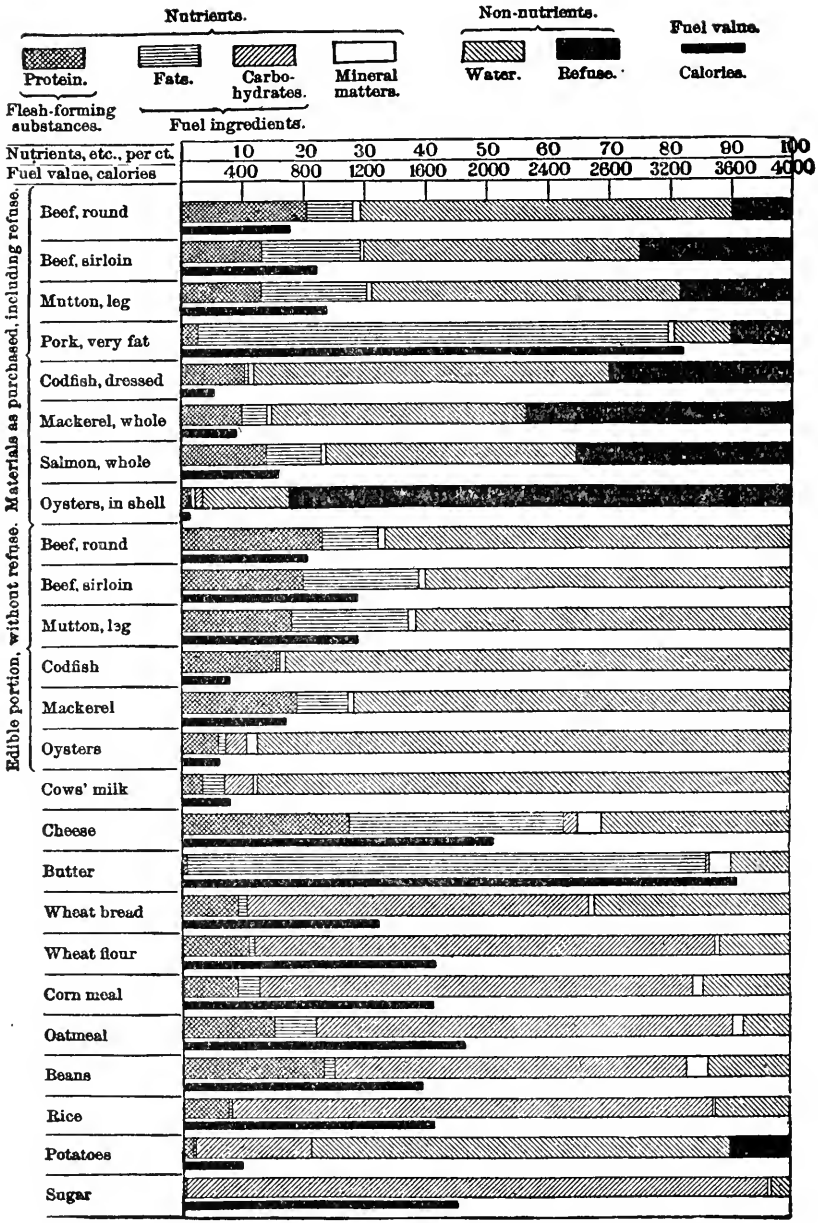

Fig. 3. Food chart of comparative composition and fuel value of food materials. (U. S. D. A. Bul.)

harmful products in the body and enforcing greater work on the excretory organs. Excessive consumption of protein food is harmful.

Carbohydrate is the general name for a large class of familiar food materials that do not contain nitrogen. In order to maintain its temperature and to do work, the body must obtain energy, and this is supplied very largely by the carbohydrates. Starches and sugars are produced in plants on a very generous scale for our use. When eaten in excess, carbohydrates are stored in the body as fatty tissue.

Fats and oils are composed of the same elements as carbohydrates; namely, carbon, hydrogen, and oxygen, and are used in the body for the same purpose. The proportion of carbon is much greater than in carbohydrates, for which reason they give about twice as much heat and energy. The fats, however, are harder to digest. They also add to the fatty tissue.

Mineral matter, consisting of compounds of sodium, lime, iron, potash, sulphur, phosphorus, etc., are found principally in cereals, milk, meat, fish, and fruits. Mineral substances enter into the composition of all tissues of the body, especially bone and blood, and are very necessary to young and growing persons.

Water. (Composition and function given on page 16.)

Vitamines are disease-preventing substances found in various articles of food but which have not yet been isolated and whose chemical composition has not yet been determined. While it is thought that phosphorus does not enter into the molecule of the vitamine, the vitamine and the phosphorus content of the food are closely related. If less than 4 per cent of the pentoxide (P_2O_5) of phosphorus is present, the food does not have sufficient disease-preventing

properties. Vitamines have no direct relation to the protein, fat, and carbohydrates contained in the diet.

Three vitamines are recognized: (1) fat-soluble A, present in butter-fat, cod-liver oil, green leaves, etc. These prevent an eye disease called xerophthalmia, and rickets, (2) water-soluble B, found principally in plants, and preventing polyneuritis in birds and beriberi in human beings, and (3) water-soluble C, an antiscorbutic vitamine which prevents scurvy. All these vitamines are necessary for growth as well as for health.

Fat-Soluble A. Butter-fat is the general source of this vitamine. It is also found in the yolks of eggs, yellow beef fat, fish oils and pure animal oleomargarines. Of the vegetables spinach, and, generally, leafy vegetables, along with carrots, sweet potatoes and yellow corn are the richest in it. The alkali of baking soda, unless counteracted by sour milk, destroys this vitamine.

Experiments have shown that such temperatures as are used for ordinary cooking may destroy the essential property of the vitamines. There is, therefore, greater necessity for the employment of some of these foods at least in their natural state.

Water-Soluble B. This vitamine is present in milk and animal foods in a lesser degree but more widely distributed in plants, among which are cereals, legumes, spinach, cabbage, potatoes, carrots, onions, turnips, beets, and tomatoes. The parts of the cereals which contain the vitamine are the germ and the outer coating, or bran, the part that in the higher milling process is eliminated. Yeast also is a very rich source of this vitamine.

The effect of cooking temperatures is likely to deteriorate if not to destroy the efficacy of this vitamine.

Water-Soluble C. This vitamine is not found in yeast,

fats, and cereals, in only small quantities in fresh milk and meat, and in greatest amounts in fresh fruits and vegetables. Raw cabbage, orange juice, and tomatoes are excellent antiscorbutics. This vitamine, like the others, is rendered practically of no value by high temperatures. Hence boiled or pasteurized milk would be deprived of its natural efficacy as an antiscorbutic.

Drying and storing, generally speaking, impair the effectiveness of all vitamines.

Bacteria are a group of widely distributed vegetable microörganisms of transparent protoplasm. They perform a great variety of functions, such as converting dead organic matter into soluble food materials for plants, fixing atmospheric nitrogen in legumes, and causing fermentation and disease. Some are helpful; some are harmful. They multiply, and, often, very rapidly by division. Their growth depends on their food supply, moisture, and temperature. The problem is to control the useful bacteria and to prevent the multiplication and action of the harmful ones. Fresh air, direct sunlight, sterilization, and germicidal agents are the principal antagonists. Cleanliness and protection are necessary precautions in the case of foods.

A further treatment of this subject will be found on page 189.

Table of Abbreviations

For the sake of convenience in cookery, a few abbreviations are used. Those used throughout this text are:

tsp. for teaspoonful
tbsp. for tablespoonful
ssp. for salt spoonful
c. for cupful
pt. for pint
qt. for quart
lb. for pound
oz. for ounce
f. g. for few grains
r. for rounded
h. p. for heaping
sc. for scant
min. for minute
hr. for hour

Table of Measures

3 tsp. are equivalent to 1 tbsp.
12 tbsp. are equivalent to 1 cup wet material
16 tbsp. are equivalent to 1 cup dry material
2 c. are equivalent to 1 pt.
2 pt. are equivalent to 1 qt.
4 qts. are equivalent to 1 gal.
8 qt. are equivalent to 1 peck, (dry)
4 c. (about) flour equal 1 lb.
2 c. sugar (gran.) equal 1 lb.
2 c. butter packed solid equal 1 lb.
2 c. chopped meat equal 1 lb.
2 tbsp. butter equal 1 oz.
1 tbsp. sugar equals 1 oz.
1 tbsp. liquid equals ½ oz.
9 or 10 eggs, depending on size, equal 1 lb.
The juice of 1 lemon equals 3 tbsp.

All measurements used in this book are *level.* Great care must be taken to measure accurately.

Directions for Measuring.—1. For a *spoonful*, dip the spoon into the material, lift it, and level off true with a spatula.

2. For a *cupful*, fill the cup with the aid of a spoon, and level off with a spatula.

3. For a *half spoonful*, level off a spoonful and then divide lengthwise through the middle. The spoon is larger at the back than at the point, and a more accurate measure may be obtained in this way.

4. For *one-fourth spoonful*, divide the half-spoonful cross-wise, dividing a little back of the middle.

5. For *one-eighth spoonful*, divide a fourth-spoonful diagonally across from center of spoon to outer rim.

6. In measuring *dry material*, as flour, baking powder, soda, powdered sugar, spices, sift or shake up lightly before measuring, and do not dip cup into the material, which packs it, but fill with a spoon.

7. To measure *butter* or *lard*, pack solidly into cup with a spoon.

8. A *heaping* teaspoon or cup means all it will hold.

9. A *scant* teaspoon or cup is a little less than level measure.

Fig. 4. Measuring: ½ c. liquid, 1 c. dry, ½ tbsp. dry, ⅛ tsp. dry, tbsp. butter.

RULES FOR WORKING

1. Wash your hands with soap and water and scrub and clean your nails. If you handle anything not clean, wash your hands again.
2. Have your hair neatly fastened back.
3. Wear no jewelry.
4. Wear a wash dress, if available.
5. Never dry dishes with a hand towel or an apron.
6. Never taste with the mixing spoon.
7. See that gas or oven will be ready for use at the time it is needed.
8. In beginning work collect all necessary material and utensils, also provide a utility plate on which to lay sticky knives, etc.
9. Save dishes by measuring dry material first, then liquid, and lastly fats.
10. Break eggs separately in a cup or saucer, to be sure they are fresh.
11. Save a little milk to rinse the bowl in which the eggs are beaten.
12. Tin dishes and iron spoons will discolor batters; so use earthen dishes and wooden spoons.
13. Do not let vinegar or lemon juice stand in a tin cup or dish.
14. Clean up your work and put egg and batter dishes to soak as soon as empty.
15. Stand egg beaters in cold water, but take care not to wet the cogs.
16. Stir and beat with a tablespoon or mixing spoon, never with a teaspoon.
17. Hang a piece of paper on the oven door when the oven is in use, to remind you of the baking.

RULES FOR WASHING DISHES AND FOR CARE OF UTENSILS

Preparations.—1. Collect all dishes to be washed; scrape, clean, and pile like dishes together.

2. Soak dishes that have contained dough, batter, eggs, or starch in cold water; those soiled by sugar, in hot water.

3. Prepare two pans of good hot water. Use one for rinsing and one for washing dishes.

4. Wipe out all greasy pans with paper and put paper in the garbage can or stove.

5. Remove the hot-plate board from the table and place on the stove, providing a clean, dry place clear for clean dishes.

6. Serviceable towels for drying dishes are made by hemming flour sacks. Glass toweling or linen crash absorbs moisture readily. A good dishcloth should not be too large and should be sweet and clean. Have one for china and one for kitchen dishes.

Instructions for Washing.—1. Put glasses into hot water sidewise to prevent uneven expansion of glass, which breaks them.

2. Glass and silver ware are brighter if wiped directly from clean, hot suds. Do not rinse.

3. Wash cut glass in warm water and dry carefully. A sudden change of temperature breaks cut glass.

4. Rinse all dishes, except glasses, in clean, hot water, and wipe quickly with a clean, dry towel.

5. Do not put bone or wooden knife or fork handles in water. Wipe with a wet cloth and then dry them.

6. Scour kitchen knives and forks with bath brick or sapolio and then wash and rinse well.

7. Scrape rolling pin and molding board and wipe off with a wet cloth. Do not use much water on either.

8. Do not wet the cogs of egg beaters.

9. Wash the teapot and the coffeepot clean with hot water, wipe dry, clean spout carefully, and leave with covers open.

10. Get clean water several times during the washing process.

11. Wash the dish pan thoroughly, rinse, and wipe dry.

12. Rinse out the dishcloth and towels and hang in the air and sun to dry.

APPLICATION

1. Practice measuring, both liquids and dry materials.
2. Learn to know sections on measuring cup.
3. Wash dishes.
4. Do general housekeeping work,—sweeping, caring for sink, stoves, pantry, etc.

LESSON 2

HEAT, COMBUSTION, FUEL

Carbon.—All vegetable and animal matter contains carbon. This can be easily shown by simple experiments:—

1. Heat a little sugar in a test tube over a gas flame. What does the heat do? What is left?

2. Heat a little starch in a test tube over a gas flame.

3. Heat a tiny piece of meat in a test tube over a gas flame.

4. Hold a cold plate for a moment over the red part of the gas flame, over a lighted lamp, or in the red flame of a coal or wood fire.

In like manner, any organic substance may be heated to a black char, which is mostly carbon. How is charcoal made?

Animals get the carbon of their bodies from plants, which in turn get it from the air. Animals breathe in the pure air and give off impure air containing carbon dioxide gas. The plants take up this gas through their leaves and stems, and by the aid of water and the energy from the sun the carbon is manufactured into sugar, starch, and cellulose in the plant fiber. When carbon burns, it again liberates the sun's energy.

Heat is natural or artificial. Sunlight gives natural heat; fire, artificial heat. The sun is the source of all energy.

Experiments Illustrating Burning.—

1. Light a short candle, place it on the table, and watch it burn.

2. Turn a tumbler over it and see what happens.

3. Turn a chimney over the lighted candle, raising the chimney a little from the table. Then cover the top of the chimney and see if there is any change.

4. Light a small piece of paper, and uncovering the top of the chimney quickly drop in the lighted paper. What happens?

What do these experiments indicate? What element in air is necessary to a burning candle?

5. Clean two half-pint milk bottles. Insert a lighted paper into one of the bottles and then cover. Pour a little clear lime water into the bottle. Is there any change in the clearness of the lime water?

6. Breathe into fresh lime water in the second bottle, through a straw. Is the result similar to that of Exp. 5?

Clear lime water turns milky when carbon dioxide gas mixes with it. Is any of this gas present in Experiments 5 and 6? If so, explain where it came from.

Things Essential for a Fire.—Three things are essential for fire (1) air (oxygen), (2) fuel, and (3) a means of raising the temperature to the kindling point.

Oxidation (Combustion).—Oxygen unites readily with many other elements, and the process is called oxidation. When this takes place so rapidly that heat and light are produced as in fire, we call it combustion. It may also go on very slowly, yet the results are the same. Food is oxidized slowly in every living cell of the body, giving heat and the energy to do work.

The Kindling Point.—By the kindling point of a substance we mean the lowest temperature at which it burns, or unites with oxygen. Fuels differ as to this temperature, some having a much lower kindling point than others. For this reason, matches, paper, and wood burn more

readily than coal. The phosphorus of the match is ignited by the friction of striking, and burns. This in turn is used to ignite larger pieces of wood which have a higher kindling point. In the making of a coal fire, wood is used to raise the temperature high enough to ignite the coal.

Products of Combustion.—The most common products of combustion are steam, carbon dioxide gas, smoke, soot, and ashes. In incomplete combustion a gas is formed, called carbon monoxide, which is very harmful to breathe. The carbon that is not burned passes off as smoke and soot. Soot contains some oily substances and sticks to cooking utensils and to the chimney and should be removed often. When allowed to accumulate in the chimney, soot is apt to cause fires.

FUELS

The most common fuels are wood, coal, kerosene, and gas. Being of vegetable origin, they all contain carbon.

Wood is either hard or soft. Soft wood kindles quickly and produces a quick fire but which is of short duration. Pine and birch are soft wood. Hard wood burns more slowly, but a fire of hard wood keeps longer than one of soft wood. Oak and maple are examples of hard wood.

Coal is of many kinds and is all formed from ancient vegetation which has been buried deep in the earth for a long time and subjected to a high degree of heat and pressure. Coal has a higher kindling point than wood, burns with a strong, steady heat for a long time, and holds fire much longer than the hardest wood.

Kerosene, or coal oil, is prepared from petroleum and is used in stoves made especially for it. It is a cheap fuel and is safe if a good grade is used and care taken to keep the stove clean and in good condition.

Gas is either natural or manufactured. Both are excellent for fuel. Natural gas is cheap and can best be used only in localities where it is found. Manufactured gas is made from coal, petroleum, oil, wood, or peat, and is a clean fuel. In most cities where such gas is used it is cheaper than wood or coal.

Gasoline is very inflammable and not safe to use in homes and schools.

THE COAL RANGE

Fire is used by all people as a means of preparing food. Many forms of cooking arrangements have been adopted, from the primitive camp fire, the grate fire and stove, to the coal range and the gas and electric appliances of modern times.

Stoves differ widely in construction, yet all have the same essential parts, and in all the same principles apply. Study the stoves at school and at home and compare them.

Parts of coal range to be studied are:—

Fire box, which contains the fuel.

Grate, or floor of the fire box. It is made in two parts, and may be opened.

Dampers, which are (1) creative and (2) check, to control the draft, (3) chimney and (4) oven, to direct the hot air currents.

Ovens, used for baking food.

Top, with covers of various sizes for surface cooking.

Ash pan, for ashes and clinkers.

Stovepipe. to carry off smoke and other products of combustion, and to afford a draft.

To lay a fire: 1. Have fire box free of ashes.

2. Remove lids from over the fire box.

3. Place pieces of twisted paper or shavings crosswise in fire box.

4. Place a few pieces of soft wood and a couple of pieces of hard wood on top.
5. Put on a shovelful of coal.
6. Close top of stove before applying match.

To start a fire: 1. Open lower and chimney dampers.
2. Apply lighted match underneath to twisted papers.
3. When the fire has a good start, add more fuel.
4. Never fill the box more than two-thirds full.

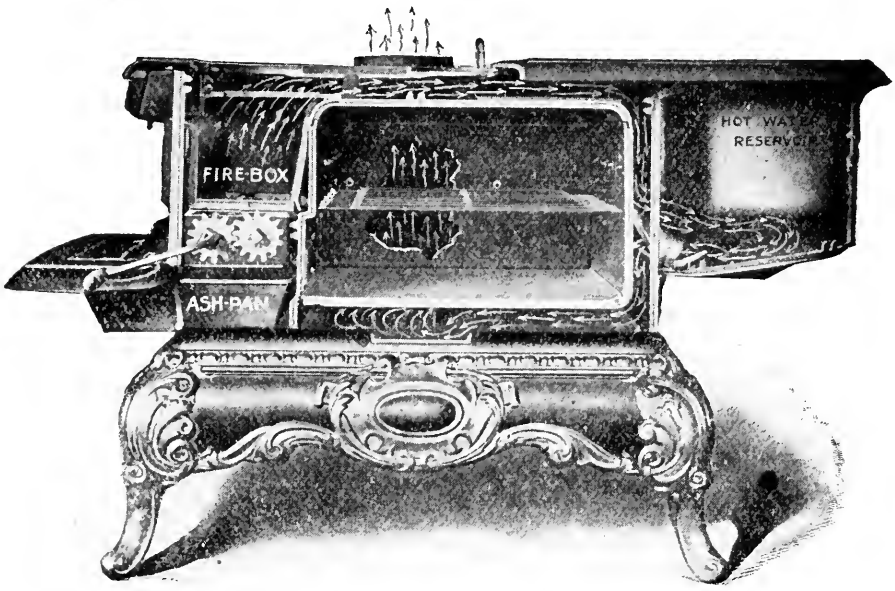

Fig. 5. A range, showing how the oven is heated. The purpose of dampers is to control the air currents,—to direct them and to make them hotter or not so hot. (Courtesy Kalamazoo Stove Company.)

To regulate a fire: *For a hot fire*, open the creative and chimney dampers. Close oven damper. As soon as coal burns red on top, add more coal. When coal is red underneath and black on top, close dampers.

To heat the oven, open oven and chimney dampers and close others. This forces the hot air current around the oven and out the back of the range to the chimney.

If the oven bakes too hard on bottom, open the slide in front of and below the grate.

If the oven bakes too hard on top, lift a cover slightly from the top of the fire box.

To hold a fire, fill fire box with coal, close all dampers, open check half way. The check is in front of and above the fire box, and causes a current of air to pass over the fire instead of through it, thereby checking oxidation.

General Care of the Coal Range.—1. Clean oven flue once a month when in constant use. The accumulation of fine ashes prevents free circulation of hot air, besides absorbing heat.

2. Clinkers, egg shells, etc., should be avoided in the fire box. Put shells in only when the fire is burning freely.

3. Do not allow coal to reach the top of box. It reddens the covers and causes them to warp.

4. Empty the ash pan regularly and do not let it overflow. An overflowing ash pan hinders the draft of air as well as makes extra work.

5. Keep the stove clean. Brush off at once anything that is spilled over it or in the oven.

6. A cloth with a few drops of kerosene on it rubbed over the stove when cold will keep it from rusting and is sufficient to keep the stove in good condition.

7. If a polish is preferred, select one of good quality, moisten a small quantity with water, and apply sparingly with a brush, just as the stove is warming up.

A study of fuels,—wood and coal, with varieties of each, cost, and suitability,—may be taken up in this connection.

THE GAS RANGE

Gas ranges differ in construction as widely as coal ranges, but all are built on practically the same general plan. Study gas ranges at home and at school and compare.

The parts of a gas range that should receive attention are:

The *main pipe*, which leads the gas into the range. It has a shut off. Locate it.

The *oven*, for baking. This is regulated by gas stopcocks. It is sometimes controlled by a pilot light, sometimes by direct action. Explain.

The *broiling oven* and *toaster*. The gas flow for these is controlled by gas cocks.

Top burners, for surface cooking. Each has a separate cock. Locate the cock for each burner.

The *simmering burner*, a small burner on top.

The *stove pipe*, a connection of range to chimney to carry off smoke and gas.

To light the gas burners: See that the main stopcock is open. This may be left open from day to day, but should be closed when gas is not used, as in vacations or when making repairs.

Light the match, open the cock of the burner you wish to light, and apply match to burner. If it "fires back," close gas cock, and open again to permit the flow of gas through the cock for a moment to drive out the air. Close again and then relight as before.

Each burner has an air regulator, which should be adjusted to the air pressure in the city where it is used. The flame should burn blue; if the flame is yellow, adjust air flow at once.

Caution: In discontinuing use, always see that all stopcocks are shut off tight.

To light the gas oven: Open the oven doors. If a pilot-light, turn on the pilot and apply lighted match through hole for that purpose in the side of the oven. When lighted, turn on first one gas cock in the oven and then the other.

See that the entire coil burns with a blue flame.

If a direct action, apply lighted match directly to the coil as cock is turned on, always with oven doors open. Bad explosions often occur if one fails to observe these directions.

To regulate the fire and save gas: As soon as a kettle boils, turn down the gas enough to just keep contents boiling. If the gas is turned too high, the yellow flame will blacken the kettle. A blue flame is clean. Use simmerer instead of a large burner, when long, slow cooking is needed or to hold warmth.

In heating the oven, light gas a few minutes before the dish is ready to go in, to insure heat; then reduce the flame to hold the heat. Turn off the gas entirely a few minutes before removing baking from oven, since the oven retains enough heat to finish the cooking, and the extra gas would be a waste.

Care of the Gas Range.—1. Keep air holes clean.

2. Wipe off sheet iron under top burners clean when through cooking each day.

3. If anything is spilled on the stove, wipe off immediately.

4. Rub daily with cloth containing a few drops of kerosene, to keep black and clean and free from rust.

THE ELECTRIC STOVE

Electric stoves are not very commonly used, but are cleaner and more convenient than the gas stove. They are more expensive to operate, however, on account of the high rate of the electricity consumed. Electric stoves vary in size and construction.

The parts of an electric stove are:—

Electric *coils*, placed under the covers and around the oven. These become red hot when the current is turned on.

The *oven*, for baking.

Electric attachment, where the stove is connected with current. A switch button is used as with electric lights.

Electric Appliances.—There are various appliances for cooking food by means of electricity; as, toasters, chafing dishes, percolators, and combination cookers. These may be attached to any light connection in a minute's time, are very convenient, moderate in first cost, but comparatively expensive of use.

OIL STOVES

Kerosene is used to a large extent in country homes and summer residences where gas is not available. Good, vaporized blue-flame kerosene stoves give satisfaction and are quite safe when placed where there is no draft.

The parts of oil stove to be studied are:—

The *tank*, for oil.

Several *lamps*, each consisting of a chamber for oil and wicks, which need daily care, and cylinders, which carry the heat to the burner above.

Care of oil stoves:—1. Clean wicks and cylinders every day. See that the tank for oil is refilled and never allowed to run dry.

2. Wipe off surface of stove and keep perfectly clean.

FIRELESS COOKERS

Fireless cookers are made from a variety of materials, but all have the same underlying principle of operation.

Construction.—Fireless cookers consist of a covered box lined with tin or zinc; packing, usually felt or excelsior, or any material that is a non-conductor of heat; food chambers,

for cooking; and radiators, consisting of iron or stone discs, which are heated and placed under and over the dish containing the food to be cooked. The efficiency of the cooker depends largely upon how nearly the packing is a non-conductor of heat.

Care of fireless cookers: 1. Keep all parts clean and dry.

2. Keep cooker tightly fastened when in use.

3. Air out frequently to keep sweet and clean.

APPLICATION

1. Practice laying a fire in the range.

2. Practice lighting gas burners, gas ovens, and the water heater.

3. Baked Potatoes

Method.—Select smooth, medium-sized potatoes. Wash well with a small vegetable brush kept for the purpose. Bake in a hot oven about 45 minutes or until done. This may be determined by testing with a fork. Break the skins to let the steam escape, and serve at once. If baked potatoes stand they become soggy.

4. Stuffed Potatoes

6 medium-sized potatoes, baked	4 tbsp. hot milk
2 tbsp. butter	2 egg whites
½ tsp. salt	Pepper

Method.—Cut the end from each baked potato, or cut in half lengthwise, scrape out the inside with a fork, and mash the center with a fork. Season it with the salt, pepper, butter and milk. Add the beaten white, reserving part of it for the top. Fill the skins with the mixture, brush over the top with the egg and return to the oven until browned.

Grated cheese may be sprinkled on the top for a change. Minced meat may be added to the potato. Ham or chicken would be good.

(*Basis for 2 girls, 1 potato.*)

LESSON 3

COOKING. CARBOHYDRATES—POTATOES

COOKING is the application of heat to food to prepare it for eating.

Reasons for Cooking.—Food is cooked for any or all of the following reasons:—

1. To make it more easily chewed and digested.
2. To improve its flavor and appearance.
3. To kill any germs and parasites it may contain.

Methods of Cooking.—The method to be used in cooking a food depends, among other things, upon (a) the nature of the food and (b) whether it is desired to extract, partially extract, or retain the juices. The heat is applied in a variety of ways: by (1) radiation, (2) hot water or steam, (3) hot fat, (4) hot metal, and by combinations of these.

1. *Boiling* is cooking in boiling water. In this case the cooking water is usually drained off and not used.

2. *Stewing* is long, slow cooking in water below the boiling point. The pot is tightly covered, and the enclosed steam assists in the cooking. The liquids are usually served with the dish as gravy or are made into soup.

3. *Steaming* is cooking by either moist steam, as in a steamer over boiling water, or by dry steam, as in a double boiler.

4. *Roasting*
5. *Broiling* } In the olden days meats, especially, were commonly cooked in the direct heat of a glowing fire or over a bed of coals. Small pieces were broiled and larger ones roasted, a tin reflector being used for the latter.

6. *Pan broiling* is cooking in a hot frying pan. It is used when it is not convenient to broil directly over the fire.

7. *Baking* is cooking in an oven. It is quite the same as roasting and broiling, which it has superseded. Batters, doughs, and vegetables are usually spoken of as baked in an oven, and meats as roasted.

8. *Pan baking* is cooking on a hot griddle, as pancakes are cooked.

9. *Frying* is cooking by dipping or immersing in hot fat. Fat, unlike water, will heat to a temperature of 500° or greater. Doughnuts, fish, and potatoes are foods commonly fried.

10. *Sautéing* is cooking in a small amount of hot fat. Omelets and hashed browned potatoes are sautéd.

11. *Braising* is cooking in a small amount of water or stock in a covered dish in an oven. It is a combination of stewing and baking.

12. *Fricasseeing* combines sautéing and stewing.

STARCH

Starch, in prepared form, is a fine white powder, consisting of tiny starch grains. It is a carbohydrate.

Source.—It is found in the vegetable world and is most abundant in the cereals, tapioca, potatoes, and other vegetable products. Starch is not formed in the animal body.

Food Value.—Starch gives heat and energy to the body but does not build or repair tissues, and when used alone it cannot sustain life; it must be used with tissue-forming foods. Starch must be changed to sugar by digestion before it can be used in the body.

Test for Starch.—Iodine turns starch a deep blue. (Demonstrate.)

Use.—Starch in the prepared form is used to thicken liquids and sauces.

Starch Experiments.—

1. Put a tsp. of starch in a glass containing ¼ c. of water. Watch it. What happens?

2. Mix 1 tsp. of starch with ¼ c. cold water to form a paste. Add ½ c. boiling water. See what happens.

3. Pour ½ c. boiling water over 1 tsp. of starch, without first mixing cold water. What happens? Break one of the lumps.

4. Mix starch grains with melted butter; add boiling water.

5. Mix starch with granulated sugar; add boiling water.

Compare results of experiments and draw conclusions.

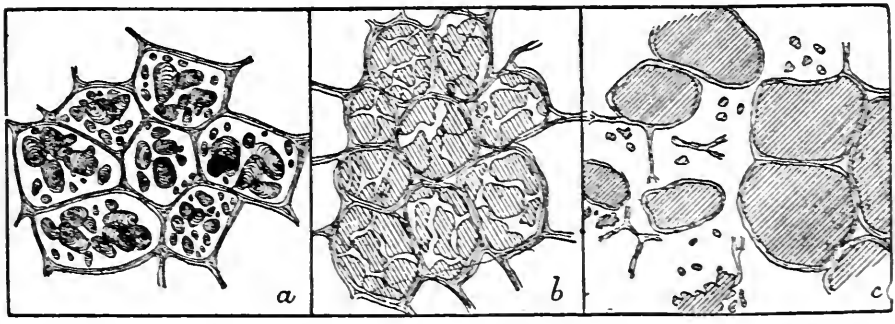

Fig. 6. Effect of cooking on starch: *a*, cells of a raw potato, showing starch grains and framework; *b*, cells of a partially cooked potato; *c*, cells of a thoroughly boiled potato. (Hutchison.)

The Cooking of Starch.—Heat and moisture are needed to soften starch.

Starch grains must be separated in some way before boiling water is added.

Starch needs long, thorough cooking and a high temperature to make it easier to digest.

POTATOES (Irish, or White)

A potato is an enlargement of an underground stem. It is a storehouse of starch, which furnishes food for the young plants.

Composition.—Potatoes contain—

Water, about ¾ their weight. For this reason they may be baked, since they contain enough water to soften the starch.

Starch, about 1/5 their weight.

Protein, about 2.5 per cent.

Cellulose, which forms the walls of the cells.

Mineral matter, which is mainly potash salts.

What food principle is wholly lacking? Which is deficient in amount?

Structure.—The potato is made up of cells with thin walls of fiber, and these cells contain starch grains and water. Surrounding the mass of starch cells and just beneath the skin is a layer of nutritious mineral matter and protein material. This is wasted if the potato is peeled too thickly.

Manner of Growth.—Potatoes are grown from cuttings, each cutting planted producing several tubers beneath the soil. They are best when fully matured; those immature are soggy when cooked. Large potatoes are likely to be hollow at the center.

Care in Storage.—Potatoes should be kept in a cool, dark, dry place. Do not let potatoes sprout. The sprouts use moisture and starch from the potato, and thus decrease its value for the table.

Food Value.—Owing to their large content of starch, potatoes are excellent as heat and energy producers. Potatoes are healthful and are easily and thoroughly digested. They furnish 12.5 per cent of the average American diet.

Rules for Paring Potatoes.—1. Always pare potatoes thinly.

2. Remove sprouts and eyes with the point of a knife.

3. Drop potatoes in cold water as soon as they are peeled, but allow them to soak as little as possible. Explain why.

4. Soak old potatoes in cold water an hour before cooking, to restore part of their freshness.

Points on Cooking Potatoes.—1. Drop potatoes into boiling water to cook, not into cold water. Why?

2. Too vigorous boiling tears the outside of the potatoes before the inside is cooked.

3. Pour off all the water when the potatoes are tender and let them stand uncovered. Why?

4. Baking potatoes and boiling them with the skins on are the most economical methods of cooking them. There is less loss of nutrients and flavor than with any other method.

The Sweet Potato.—The sweet potato, which is an enlarged root, is a warm-climate plant and is grown in the United States as far north as New Jersey. It is about as common an article of food in the South as the white potato is in the North.

While the sweet potato is somewhat higher in food value than the white, it may be regarded and treated similarly. It contains about 26 per cent of starch and sugar, of which 10 per cent is sugar. It also has about 69 per cent water and 1.3 per cent cellulose, requiring a longer time for cooking.

Yams are the tropical substitute for the potato. These roots are larger, similar in structure, but coarser and less palatable, than either the white or the sweet potato.

APPLICATION

1. Test the potato for starch with iodine.

2. Test for simmering point and boiling point of water. Is the temperature increased by more rapid boiling?

3. Boiled Potatoes

Method.—Select potatoes that are smooth and of uniform size. Wash and pare them. Cook them in boiling salted water until soft. Test with a fork; if it withdraws easily, the potatoes are done. Allow one tablespoonful of salt to every seven potatoes and enough water to cover. Drain off the water and let stand uncovered in a warm place until served. Serve hot. Potatoes may also be scrubbed well and boiled with the skins on.

(*Basis for 2 girls, 1 potato.*)

4. Riced Potatoes

Method.—Put boiled potatoes through a hot potato ricer and serve at once. Do not pack or mash in putting into the serving dish.

5. Mashed Potatoes

2 tbsp. butter
6 boiled potatoes
4 tbsp. hot milk
½ tsp. salt
Pepper

Method.—Mash the boiled potatoes with a potato masher or a fork until soft, add the butter, salt, pepper, and the milk, and beat all until light and foamy. Serve piled lightly in a hot serving-dish.

6. Sweet Potatoes

Method.—Cook sweet potatoes with the skins on. They may also be mashed, riced, or baked.

7. Potato Cakes

Method.—Press cold mashed potatoes into small round cakes about ½ inch thick. Brush over with milk, and sauté them in butter until a rich brown on both sides.

8. Creamed Potatoes

1 c. cooked potatoes ½ c. medium white sauce
1 tbsp. finely chopped parsley

Method.—Cut the boiled potatoes in half-inch cubes. Make a medium white sauce according to first method in Lesson 4, and combine with the potatoes while hot. Add the finely cut parsley and serve.

9. Au Gratin Potatoes

1 c. boiled potatoes ¼ c. buttered crumbs
½ c. medium white sauce

Method.—Cut the boiled potatoes in half-inch cubes; put a layer of potatoes in a buttered baking dish, and cover with half of the white sauce; then add the rest of the potatoes, the rest of the white sauce, and lastly the buttered crumbs. Allow 1 tbsp. of butter to each ¼ c. of crumbs. Bake in the oven until the top is nicely browned.

10. Delmonico Potatoes

Add a layer of grated cheese to the top of Au Gratin Potatoes before adding the crumbs, and bake the same as Au Gratin.

11. Glazed Sweet Potatoes

Method.—Wash and pare 6 medium-sized sweet potatoes. Cook in boiling salted water 10 minutes. Drain, cut in halves, lengthwise, and put into a buttered baking dish. Make a sirup by boiling ½ c. sugar with 4 tbsp. of water 3 min., then add 1 tbsp. of butter. Brush the potatoes with the sirup, and bake 10 to 15 minutes until tender. Baste the potatoes with the sirup once or twice while baking.

12. Baked Sweet Potatoes

Prepare and bake the same as white potatoes.

LESSON 4

CARBOHYDRATES—VEGETABLES

VEGETABLES include most of the plants used for food with the exception of grains and fruits.

Classes of Vegetables.—Different parts of vegetable plants are used for food, and these may be arranged in classes as follows:—

Tubers, or the enlargements of underground stems; examples, white potato, artichoke.

Roots; examples, sweet potato, beet, carrot, radish, parsnip, turnip, oyster plant.

Bulbs; examples, onion, garlic.

Stems; examples, asparagus, celery, chives.

Leaves; examples, lettuce, spinach, water cress, cabbage, and greens.

Flowers; example, cauliflower.

Fruits; examples, corn,* pea, bean, tomato, squash, cucumber, and eggplant.

Composition.—The edible portion of most vegetables is a storehouse of nutriment that the plant has laid up either for its own later use or for the benefit of the seedling, or young plant. Thus the radish uses the food in the enlarged root to produce a seed stalk, and the young bean and grain plants use the nutriment in the seed to get a growing start in the soil.

Legumes are a class of plants that have the power to take nitrogen from the air and make it into a form that is available to man. They include peas, beans, lentils, and

* The term "fruit" here includes seeds.

peanuts. Legumes contain from 18 to 25 per cent protein, mostly in the form of legumin. In European countries, they are used to a great extent in place of meat, which is there very expensive.

THE COMPOSITION OF VEGETABLES

Food material (as purchased)	Refuse	Water	Protein	Fats	Carbohydrates	Ash.	Fuel value per lb.
Vegetables:	%	%	%	%	%	%	calories
Beans, dried	.....	12.6	22.5	1.8	59.6	3.5	1,520
Beans, Lima, shelled	.....	68.5	7.1	.7	22.0	1.7	540
Beans, string	7.0	83.0	2.1	.3	6.9	.7	170
Beets	20.0	70.0	1.3	.1	7.7	.9	160
Cabbage	15.0	77.7	1.4	.2	4.8	.9	115
Celery	20.0	75.6	.9	.1	2.6	.8	65
Corn, green (sweet), edible portion	.....	75.4	3.1	1.1	19.7	.7	440
Cucumbers	15.0	81.1	.7	.2	2.6	.4	65
Lettuce	15.0	80.5	1.0	.2	2.5	.8	65
Mushrooms	.....	88.1	3.5	.4	6.8	1.2	185
Onions	10.0	78.9	1.4	.3	8.9	.5	190
Parsnips	20.0	66.4	1.3	.4	10.8	1.1	230
Peas, dried	.....	9.5	24.6	1.0	62.0	2.9	1,565
Peas, shelled	.....	74.6	7.0	0.5	16.9	1.0	440
Cowpeas, dried	.....	13.0	21.4	1.4	60.8	3.4	1,505
Potatoes	20.0	62.6	1.8	.1	14.7	.8	295
Rhubarb	40.0	56.6	.4	.4	2.2	.4	60
Sweet potatoes	20.0	55.2	1.4	.6	21.9	.9	440
Spinach	.....	92.3	2.1	.3	3.2	2.1	95
Squash	50.0	44.2	.7	.2	4.5	.4	100
Tomatoes	.....	94.3	.9	.4	3.9	.5	100
Turnips	30.0	62.7	.9	.1	5.7	.6	120
Vegetables, canned							
Baked beans	.....	68.9	6.9	2.5	19.6	2.1	555
Peas, green	.....	85.3	3.6	.2	9.8	1.1	235
Corn, green	.....	76.1	2.8	1.2	19.0	.9	430
Succotash	.....	75.9	3.6	1.0	18.6	.9	425
Tomatoes	.....	94.0	1.2	.2	4.0	.6	95

The leaves of plants are the means by which the plant breathes in carbon dioxide and gives out oxygen, and they contain very little nourishment. It is here that sugar and

starch are largely manufactured, to be then carried to other parts of the plant for growth or for storage. Greens, which are chiefly the leaves and stems of plants, consist largely of water, with much cellulose, considerable mineral salts, and comparatively small amounts of protein, starch and sugar.

Food Value.—All vegetables are of value in the diet for their mineral salts, some furnish considerable carbohydrates, and a few furnish, in addition, protein. All contain a large amount of water and indigestible material. For this reason they are suitable to eat with concentrated foods, such as meat and eggs. The cellulose, a fibrous, woody, indigestible substance, is important because it gives bulk to our food. This bulk is necessary to stimulate the flow of digestive juices and to promote the movement of food along the digestive tract.

Many greens should be eaten raw, since mineral salts are lost in the water in cooking, and the cellulose is best eaten crisp.

The legumes have a high food value and are classed with meat and cheese as a tissue-building food, since they contain such a large percentage of protein. The digestibility of food is an important factor in determining food value, for unless a food is available to the body it cannot serve the full purpose of food. Vegetables with hard cellulose fiber require long, slow cooking to soften the cellulose walls and to cook sufficiently the starch and protein. Some, like cabbage, are more digestible eaten raw.

Vegetable protein, being surrounded by cellulose walls, is not so completely digested as animal protein, and can not be counted on to build as much tissue as the same amount of animal protein. Dried beans and peas are usually sold at a comparatively low price, and are among the most economical sources of both protein and energy.

Selection of Vegetables.—Select vegetables in season—they are less expensive then, and of better quality.

Select medium-sized vegetables, for large ones are likely to be old and tough, requiring longer cooking.

See that they are fresh; green vegetables are crisp.

Care of Vegetables.—Keep winter vegetables in a cool, dark, dry place, and exclude air if possible. Why is this necessary?

Keep green vegetables on ice until ready to use.

Cook summer vegetables as soon after they are gathered as possible, in order to preserve the flavor.

Rules for Preparing Vegetables.—1. Wash all vegetables in cold water. It is a good plan to keep a small brush for this purpose.

2. Let wilted vegetables soak in cold water to freshen them.

3. Soak dried vegetables in cold water.

4. Empty all canned vegetables from the can as soon as opened. Drain off the liquor and rinse peas and beans.

Rules for Cooking Vegetables.—1. Cook vegetables whole when practical, using enough water to cover.

2. Use vegetable water for flavoring purposes, since it contains some nutritive substances.

3. Keep the water boiling.

4. Cook green vegetables uncovered, to retain their color.

5. Cook vegetables with strong odors, such as cabbage, onions, and turnips, uncovered.

6. Change the water several times during the cooking.

7. Allow 2 tbsp. of salt to 1 qt. of water.

8. The time for cooking vegetables depends on the kind, size, and age of the vegetables, and one must use judgment rather than depend on a time-table to tell when the vegetables are done.

9. Vegetables are served with butter, salt and pepper, or with a medium white sauce.

TIME TABLE GUIDE FOR COOKING

Asparagus	30 to 45 min.
Beans, (string)	1 to 2 hr.
Beans, (lima)	1 to 1½ hr.
Beets	1 hr.
Cabbage	½ hr.
Cauliflower	½ hr.
Carrots	30 to 40 min.
Corn (green)	15 to 20 min.
Onions	40 to 60 min.
Parsnips	1 to 2 hr.
Potatoes	20 to 40 min.
Peas	30 to 40 min.
Spinach	20 to 30 min.
Squash (summer)	30 to 45 min.
Turnips	40 to 60 min.

WHITE SAUCES

1. Thin White Sauce

2 tbsp. butter — 1 tbsp. flour to 1 c. milk
¼ tsp. salt — Dash pepper

This is used for cream soups and scalloped dishes.

2. Medium White Sauce

2 tbsp. butter — 2 tbsp. flour to 1 c. milk
¼ tsp. salt, dash of pepper

This is used for creamed vegetables, fish, meat, and cream toast.

3. Thick White Sauce

2 tbsp. butter — 4 tbsp. flour to 1 c. milk
¼ tsp. salt; dash of pepper

This is used for binding materials in croquettes.

Three Methods of Making White Sauce.—1. Melt the butter but do not brown, add the flour and seasoning, and stir until smooth. Add the milk slowly, stirring constantly until all is added and is perfectly smooth. Let it boil up once to thoroughly cook the starch in the flour.

2. Mix the flour with an equal quantity of cold water or milk until smooth, and then add enough more milk to

make it pour easily. Heat the remainder of the milk in a double boiler, and when hot add the flour mixture gradually, stirring all the time until the mixture thickens. Add the butter and seasoning. This method takes longer (15 min.).

3. Cream the butter, add the flour and seasonings and stir until all is well mixed. Scald the milk and pour slowly over the butter and flour, stirring all the time.

APPLICATION

1. Boiled Carrots

Method.—Wash, scrape, and cut carrots in half-inch cubes or slices. Cook in boiling water until soft. Drain and season with salt and pepper. Serve with a medium white sauce, Method No. 1.

(*Basis for two, ⅓ c. white sauce.*)

2. Boiled and creamed turnips, onions, or potatoes are prepared in the same manner as boiled carrots.

3. Boiled Beets

Method.—Select small young beets. Wash, and cook them in boiling salted water without peeling, until tender,—about one hour. When done, put in cold water and rub off the skins. Slice them and serve with salt, pepper, butter, and vinegar.

4. Corn on the Cob

Method.—Remove the husks and silk from the ears. Cook the corn in salted boiling water for 10 minutes. Drain well. Serve hot.

5. Cauliflower and Tomatoes

Method.—Soak the cauliflower in cold water, head down, for ½ hour. Cook in boiling salted water for ½ hour. Drain, and place the head on a hot serving dish. Serve with Tomato Sauce.

Tomato Sauce

2 tbsp. butter
2 tbsp. flour
½ tsp. salt
1 c. strained tomato
Pepper

Method.—Make according to white sauce using the strained tomato in place of milk. Or use half tomato and half milk, and add a speck of soda to keep it from curdling.

6. Creole Green Corn

6 ears corn
1 tbsp. olive oil
1 small onion
2 sweet peppers
2 ripe tomatoes
½ tsp. salt
Dash red pepper
1 tsp. of sugar

Method.—Cut corn from the cob, and put into a frying pan with olive oil. Cook for 10 or 12 minutes, add the chopped sweet pepper and the onion, then the chopped ripe tomatoes, salt, sugar, and dash of red pepper. Cook a few minutes and then serve.

7. Corn and Pimentos

1 can corn
3 chopped pimentos
2 tsp. butter
Salt and pepper

Method.—Put corn and chopped pimentos in frying pan with butter and cook a long time until very thick. Green peppers can also be used.

8. Baked Beans

1 qt. beans
1 hp. tsp. salt
1 tsp. ginger
1 tsp. soda
1 tsp. mustard
2 tbsp. N. O. molasses
½ lb. sliced bacon

Method.—Soak beans over night. In morning scald in hot soda water, drain, add fresh water, and cook 15 minutes. Pour off the water, add the other ingredients, cover with fresh water, and bake in covered jar 4 or 5 hours. Remove the cover the last half hour.

9. Stuffed Tomatoes

6 medium-sized tomatoes
1 c. soft bread crumbs
2 tbsp. melted butter
1 tsp. salt
1-16 tsp. pepper

Method.—Wash tomatoes. Cut a thin slice from the stem end of each. Take out seeds and pulp and drain off most of the liquid. Mix the crumbs, butter, and seasoning and add to the tomato pulp. Sprinkle the inside of the tomato with salt and pepper. Refill the tomatoes with the mixture; replace the tops. Place in a buttered pan. Sprinkle with buttered crumbs, bake 20 minutes in a hot oven.

Chopped meat, oysters, green peppers, sweet corn, mushrooms, or celery may be added to the stuffing.

(*Basis for 2 girls,* $\frac{1}{6}$ *rule.*)

10. Fresh Peas

Method.—Shell peas just before using, look them over carefully and put in a kettle containing enough boiling water to cover. Boil slowly until tender. Add butter, salt and pepper, and serve hot.

11. Canned Peas

Method.—Canned peas should be opened at least one hour before using. The air helps to restore to them their natural flavor. Turn out of the can as soon as opened, drain off the liquid, and add fresh water. Cook in a saucepan, with 1 tbsp. of butter and salt and pepper to taste, for 5 minutes, when, if of good quality, they will be done. Peas and carrots make a nice combination.

12. Eggplant

Method.—Two hours before time for cooking, peel and slice the eggplant quite thin, sprinkle each slice with salt, lay slices together and place a plate on top. The salt draws out the disagreeable flavor. Before cooking wipe each piece dry, dip in beaten egg, then in finely sifted cracker or bread crumbs, and fry in plenty of hot fat. Drain on a piece of brown wrapping paper to absorb the fat, and keep in a warm place until ready to serve. Serve on a hot platter, the slices overlapping one another.

LESSON 5

CARBOHYDRATES—CEREALS. RICE

CEREALS, or grains, are grasses the seeds of which are used for food. They are the most important of vegetable foods.

Kinds.—There are many kinds, but the most commonly used are wheat, rice, rye, oats, Indian corn, and barley. From these are prepared the various breakfast foods found on the market. Name some.

Composition.—Cereals for the most part contain all the food principles, but not in the right proportions. All contain much starch, considerable protein, and some woody fiber, with very little water; so they require long cooking.

COMPOSITION OF CEREALS

	Protein	Fat	Starch	Mineral matter	Water
Oatmeal	15.6	7.3	68.0	1.9	7.2
Corn meal	8.9	2.2	75.1	0.9	12.9
Wheat flour (spring)	11.8	1.1	75.0	0.5	11.6
Wheat flour (winter)	10.4	1.0	75.6	0.5	12.5
Entire wheat flour	14.2	1.9	70.6	1.2	12.1
Graham flour	13.7	2.2	70.3	2.0	11.8
Pearl barley	9.3	1.0	77.6	1.3	10.8
Rye meal	7.1	0.9	78.5	0.8	12.7
Rice	7.8	0.4	79.4	0.4	12.4
Buckwheat flour	6.1	1.0	77.2	1.4	14.3
Macaroni	11.7	1.6	72.9	3.0	10.8

Structure.—Most grains are covered with an outer husk of hard, indigestible fiber. This is removed either in the threshing process or in milling. Underneath this coat are

the bran coats, which are rich in mineral matter and are sometimes removed with the husk. The rest of the kernel consists of the germ, which is the vital or living part of the grain, surrounded by a large food supply of starch and protein. The germ is rich in fat and other nutrients.

Food Value.—Cereals, containing much starch, are valuable as heat and energy producers, and at the same time most cereals build and repair tissues, since they contain nitrogen. The great amount of carbohydrates in all cereals indicates that they should not be eaten alone, but along with other foods richer in fat and protein. On the whole, cereals are well absorbed in the body, ranking in that respect next to, and in some cases even above, the animal foods. This fact, combined with their compactness and richness in nutrients and their abundance and cheapness, places them in the front rank of human food.

Wheat breakfast foods are quite similar to graham and whole-wheat flours in composition, and are about equal to them in nutritive value.

Oats are sold principally as oatmeal or rolled oats. Oatmeal is richer in food material than some other cereal foods, but, on account of its fiber, is not completely digested. It should be very thoroughly cooked. It is best adapted to strong, hard-working persons.

Of all cereal foods cornmeal furnishes the largest amount of energy for a given cost. It is less digestible than wheat flour, owing to its coarse nature. Breakfast foods prepared from corn are, at reasonable prices, economical materials.

Rice is almost pure starch and, being notably deficient in protein and fat, as compared with wheat and oats, needs to be eaten with cream or butter.

Buckwheat and rye are similar to cornmeal as sources of protein and energy, but are more expensive.

TABLE FOR COOKING OF CEREALS

Kind	Amount	Water	Salt	Method	Time
Oatmeal	1 c.	Twice as much	1 tsp.	Steam	4 to 5 hrs.
Rice.....	1 c.	4 or 5 times as much	2 or 3 tsp.	Steam	2 to 3 hrs.
Rice.....	1 c.	4 or 5 times as much	2 or 3 tsp.	Boil	1 hr.
Hominy.....	1 c.	4 times as much	1 tsp.	Steam	4 to 5 hrs.
Wheat mixtures	1 c.	4 times as much	1 tsp.	Steam	1 to 3 hrs.

The prepared breakfast foods give directions and time for cooking on the package, but in most cases longer cooking is necessary.

How to Cook Cereals.—Cereals are either boiled or steamed. *To boil cereals*, allow about one tsp. of salt to each cup of cereal, and plenty of water to properly swell the starch grains. Put the water in a saucepan, and when it is boiling stir in the cereal gradually. Keep the water boiling and stir the cereal frequently to prevent the grains from sticking to the bottom. Cereals must be thoroughly cooked; it takes a long time to soften cellulose.

Steaming cereals in a double boiler is a better method than boiling, for it insures a more even cooking and requires long slow heat.

A double boiler consists of two parts: (1) Lower part, which is for the water, and must be about half full, and the water kept boiling. Never let the boiler boil dry. (2) Upper part, in which the food is cooked.

Put the cereal, with water and salt, into the upper part, and place in the lower part. Cover all and place over a fire. Steam until properly cooked, adding more water below, also more to the cereal when needed.

RICE

Rice is a cereal, a native of southeastern Asia, and now grown in large quantities in China, Japan, Central America, and our Southern states.

Cultivation.—Marshy places are necessary for rice cultivation, and a system of irrigation or flooding is used. The water is drawn off when the planting is done. When the rice has a good start the water is allowed to flood the field to a depth sufficient to keep the top of the rice above the water. The water is drawn off to harvest the rice.

Rice is prepared for market much the same as wheat. It is shocked, stacked, thrashed, and then sent to a hulling mill. Here the coat is separated from the white grain, which is polished. This polishing removes a coat rich in mineral matter; so the finished product is not as rich in minerals or protein. Rice is best when six months old. In China they prefer it three years old.

Food Value.—Rice is the lowest in food value of all cereals, for it is almost pure starch. It must therefore be eaten with other forms of food rich in protein and fat in order to supply all the needs of the body. Starch grains are easily digested.

Rice is the principal food of one-third of the people of the world. The people in the countries where it grows use it to supply their starchy food as we use the Irish potato. It is in season the year round.

Ways of Cooking.—

1. Boiling—like any cereal.
2. Steaming—in milk or water.
3. Boiled rice may be combined with tomatoes or cheese and baked.
4. Rice is used in soups.
5. Rice with eggs makes a good pudding.

Fruit with rice or other cereal adds sugar and flavoring to the dish, and is a pleasant change. Use dates or raisins.

To Wash Rice—Put in a strainer and place in cold water. Rub thoroughly, changing the water several times until the rice is clean.

APPLICATION

1. Boiled Rice

1 c. rice 2 tsp. salt 2 qt. water

Method.—Pick over and wash the rice. When the water boils rapidly drop in the rice slowly, so as not to stop the boiling. Stir occasionally to keep the grains from settling to the bottom. Boil rapidly, uncovered, 20 to 30 min., or until the grains crush easily between the fingers. Add the salt when nearly done. Pour into a strainer to drain, rinse with hot water to remove the loose starch. Set the strainer in the oven or put the rice in the serving dish and set in the hot oven a few minutes to dry the rice. Good boiled rice is white and soft and each grain is separate.

(*Basis for 2 girls, 2 tbsp. rice.*)

2. Steamed Rice

Method.—Prepare rice as for boiling, and cook with water or milk and salt, in the double boiler. Cover and cook one hour, or until tender and all the liquid is absorbed. Milk is best to use for steamed rice. Raisins may be used and the rice served with milk or cream as a pudding or dessert.

3. Cream of Wheat

1 c. cream of wheat 4 c. boiling water
½ tsp. salt

Method.—Mix the cream of wheat and salt, add slowly to the boiling water in the upper part of the double boiler, stirring constantly. Cover and steam until done, about 45 to 50 minutes. Serve with sugar and cream.

4. Oatmeal Mush

1 c. oatmeal
4½ c. boiling water
1½ tsp. salt

Method.—Put the boiling water in the upper part of the double boiler and gradually add the oatmeal and the salt. Cook over the fire without the lower part for 5 or 10 minutes; then set in the lower part of the boiler and steam for 5 or 6 hours. Stir it once in a while. Oatmeal is best cooked one day and served the next morning, to insure its being well cooked.

NOTE.—Berries, sliced peaches, bananas, apple sauce, and dates or figs cut in pieces are good additions to cereals.

5. Cornmeal Mush

1 c. cornmeal
1 tbsp. flour
1 c. cold milk
2 c. boiling water
1½ tsp.salt

Method.—Mix the meal, flour, and salt together thoroughly. Put in the upper part of a double boiler, add the cold milk and stir until smooth. Add the boiling water slowly and cook all directly over the fire for 10 minutes, stirring constantly. Put in double boiler over boiling water; cover and cook 5 hours. Serve hot with cream and sugar.

6. Fried Cornmeal Mush

Method.—Use cornmeal mush prepared as above, and pack in a wet mold or bread pan. Set away to cool for several hours. When cold cut in thin slices and sauté in hot butter or drippings in a hot frying pan, until well browned on both sides. Serve plain or with butter or maple sirup.

7. Left-overs of Cereals

Method.—The cold cooked cereals may be cut in slices ¼ inch thick and sautéd until a nice brown and served as Rule **6**. Or, grated cheese may be added and the cereal made into croquettes and fried in deep fat.

LESSON 6

CARBOHYDRATES—CEREALS. WHEAT

WHEAT has been called the king of cereals, since it is the best for bread making and is cultivated in a greater variety of soils and climates than any other cereal.

Source.—Wheat is grown chiefly in Europe, the United States, (in Kansas, Minnesota, the Dakotas, Nebraska, Ohio) and Canada, India, The Argentine, and Australia. Russia and the United States produce about one-third of the wheat used.

History.—Wheat was first used in the eastern countries, in the earliest times. Mummies of old Egypt have been found with wheat wrapped in them. It was carried across to the western continents by the earliest explorers.

Kinds.—Wheat is known as (1) spring wheat and (2) winter wheat.

Spring wheat is sown in the spring and matures the same season. This is a hard wheat rich in gluten and is the wheat from which most bread flour is made.

Winter wheat is sown in the fall and harvested the following summer. It is softer and contains less gluten than spring wheat. Pastry flour is made from winter wheat.

Structure.—1. *Bran coats*,—there are three coats, or layers, of bran, which contain most of the mineral matter, and all are removed in white bread flour. Graham flour includes the entire kernel; whole-wheat flour, all but the coarser bran.

2. *The body of the grain*, or endosperm, composed of cells filled with the starch and protein. This nearly surrounds the vital part of the grain, or the germ.

3. *Germ*, the tiny plant that holds the life of the seed. This is removed more or less, in the process of milling, because it makes the flour yellow and injures its keeping qualities.

Composition of Wheat.—Wheat contains all the food principles, and is rich in protein and starch. See page 52 and compare with other cereals.

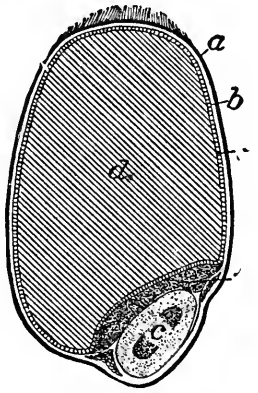

Fig. 7. Diagrammatic section of a wheat kernel: *a*, bran coats; *b*, aleurone layer; *c*, germ; *d*, body. (U. S. D. A. Bul.)

Food Value.—Wheat is high in food value. It builds and repairs tissues and gives heat and energy. It is so nutritious, so widely and cheaply grown, and its cooking and baking qualities are so favorable, that it has become the basic food of the people of the civilized world. Wheat bread is in reality the "staff of life."

Macaroni, spaghetti, vermicelli, and Italian pastes are made from a hard-wheat flour that contains a large amount of gluten. The Italians place macaroni in the same position in their diet as we Americans do our bread.

Manufacture of Macaroni.—The flour is mixed with hot water to form a stiff paste. This is placed in a steam-heated iron cylinder, the bottom of which is filled with holes. The paste is forced through these holes by a press, and comes out in the form of rods or threads, according to the shape of the opening. These rods are then cut into lengths suitable to handle and are hung up to dry for four or five days. In Italy, macaroni is hung in the open air on racks and is not as clean as that manufactured in our own country, where it is dried on racks in large, clean drying rooms for the purpose.

Spaghetti is in the form of rods and is solid and smaller.

Vermicelli is solid, thread-like, and smaller still than spaghetti.

Appearance.—Good macaroni is rough, yellowish in color, and breaks clean without splitting. When cooked it swells and is elastic and firm.

Food Value.—Macaroni is rich in gluten and starch, and is both a tissue-building and an energy-giving food. Combined with protein foods, like milk, eggs, or cheese, it makes an inexpensive dish that is a good substitute for meat.

Cooking Macaroni.—Owing to the starch, macaroni absorbs about three times its weight of water and must therefore be cooked in plenty of water.

Wash macaroni thoroughly when tender to remove outside starch, preventing it from sticking together.

To Butter Crumbs.—Sift crumbs in a strainer first to make them fine. Add ⅛ c. melted butter to 1 c. of dry breadcrumbs, mix thoroughly before using.

To Grate Cheese.—Use a dry cheese that will grate, but do not pack in measuring it. Grate on a common grater.

APPLICATION

1. Boiled Macaroni

Method.—Break the macaroni into inch pieces. Drop into boiling salted water, allowing 1 tbsp. of salt to 1 qt. of water. Cook until tender, 20 to 25 minutes, or until it can be easily pierced with a fork. Keep plenty of water on to cover while cooking. When tender, pour into a colander and wash thoroughly in cold water to remove the starch that causes the pieces to stick together. Season, and serve with thin white sauce or with Tomato Sauce.

2. Baked Macaroni with Cheese

1½ c. macaroni
½ c. grated cheese
1 c. thin white sauce
1½ c. buttered crumbs

Method.—Prepare the macaroni as for boiled macaroni. Butter a baking dish, put in a layer of boiled macaroni; then cover with one-half of the white sauce, half of the grated cheese and one-half the buttered crumbs. Then add the remainder of the macaroni, sauce, cheese, and crumbs. Bake in a moderate oven until the crumbs are nicely browned and the sauce boils up around the sides.

(*Each two use* 4 *sticks macaroni*, 2 *tsp. cheese, and* ½ *c. white sauce.*)

3. Baked Macaroni and Tomato

Method.—Use 1½ c. of stewed tomatoes in place of the white sauce, and arrange the macaroni in layers with the tomato and crumbs in place of the white sauce and the cheese.

4. Tomato Sauce

2 tbsp. butter
2 tbsp. flour
1 c. strained tomato
½ tsp. salt
Pepper

Method.—Make according to White Sauce, using the strained tomato in place of milk. Or use half tomato and half milk, and add a speck of soda to keep it from curdling.

5. Macaroni and Dried Beef

2 c. cooked macaroni
½ lb. dried beef
2 c. medium white sauce, without salt

Method.—Alternate layers of macaroni and finely cut dried beef in a buttered baking dish. Cover each layer with white sauce and buttered crumbs. Bake in the oven until brown on the top.

DIGESTION AND ITS RELATION TO COOKERY

Purpose of Digestion.—The food that we eat, as we have learned, nourishes the body. Every living cell that composes the tissues must have food particles brought to it by the blood in order to grow or produce energy. This means that the food as eaten must be reduced to a very fine state to enable it to pass into the blood and be used in the body. This process of dissolving the usable portions of food is called *digestion*. The parts of the body that have this work to do are called the *digestive organs*, and the organs that form the path through which the food passes form the *alimentary canal*.

How Food Is Dissolved.—The greatest changes that food undergoes in digestion are brought about by substances called *enzymes*, or *ferments*, which are contained in the different *digestive juices*. These ferments have the power to reduce foods to simpler substances that dissolve in liquids and pass readily into the blood. In some way they bring about great changes and are not themselves affected. There are many of these ferments, each acting on a different class of food.

In the Mouth.—In order to make it easy for the digestive juices to act, the food is first ground fine in the mouth by the teeth. The saliva softens the food and makes it easy to swallow. At the same time the *ptyalin* in it begins to act on starch, changing it to sugar.

In the Stomach.—In the stomach the food is mixed with the gastric juice secreted from the walls of the stomach. This juice contains the ferment *rennin*, which curdles milk, and *pepsin*, which partially dissolves proteins. The stom-

ach by muscular movement churns the food and makes it like moderately thick soup, and gradually passes it into the small intestine.

In the Intestines.—In the small intestine digestion goes on most extensively. Here the *bile* from the liver, the *pancreatic juice* from the pancreas, and the *intestinal juice* from the walls of the intestine pour in and are mixed with the food. Starch is changed to simple sugars, proteins are changed to simpler substances, and fats are emulsified. Here also by far the largest part of the food is absorbed into the blood and lymphatics.

In the large intestine the processes of digestion and absorption continue at a slower rate, until all digestible food substances are absorbed. The indigestible matter is finally eliminated from the body.

Relation of Cookery to Digestion.—In the proper digestion and nutrition of the body, one thing depends upon another. Food cannot be digested without the aid of generous quantities of the digestive juice; and when there is no flow of the digestive juices, there is no appetite. Some things which influence appetite and digestion are:—

1. Foods vary greatly in ease of digestion, due to differences in composition and structure. It is important to know these differences.

2. Foods differ also in their effects on the body. Some kinds are needed for their tonic effects, some for their laxative properties, and so on. It is essential to have variety and balance in the diet.

3. The method of cooking may be favorable or unfavorable to digestion. Some foods should not be cooked; others, only in certain ways. It is important to know the effects of cooking on food.

Outline of Digestion and Absorption

Part of Alimentary Canal	Glands	Secretion	Ferments	Food Acted Upon	Change in Food	Absorption	How Absorbed
Mouth	Salivary glands.	Saliva..... (alkaline)	Ptyalin.....	Starch.....	Changed to a form of sugar		
Stomach	Gastric glands..	Gastric juice... (acidic)	1. Rennin.....	Milk.....	Curdled	Slight	Blood vessels
			2. Pepsin.....	Proteins.....	Connective tissue dissolved Protein changed to peptones Food becomes semi-liquid		
Small intestine (chief organ of digestion)	1. Pancreas....	Pancreatic juice (most powerful digestive agent)	1. Amylopsin..	Starch and sugar.....	Changed to dextrose	Chief organ of absorption	Blood vessels Lacteals of the lymphatic system
			2. Trypsin.....	Protein.....	Split into soluble peptones		
			3. Steapsin....	Fats.....	Made into an emulsion		
	2. Liver.....	Bile..... (alkaline)	.....	Fats.....	Emulsified and broken up into simpler compounds		
	3. Intestinal glands.....	Intestinal juice.	(Several ferments).....	Sugar and protein.....	Liquefying process finished		

			Bacteria (in lower part)	Cellulose, protein, carbohydrates	Some cellulose dissolved Protein putrefied Carbohydrates decomposed		
Large intestine	.....	.....	Ferments from small intestine continue to act Bacteria (in upper part)	All that remains undigested....	Splitting and dissolving processes continue Bacterial action continues	Second to small intestine in amount of absorption Undigested matter eliminated	Blood vessels

Note.—In order to mix thoroughly the digestive juices with the food, and to move the food along the digestive tract, the following *mechanical* actions are performed:—

1. The mouth divides the food and mixes it with the saliva.
2. The esophagus, or gullet, carries it to the stomach.
3. The stomach, by muscular contraction of its walls, churns the food and brings all in contact with the gastric juice.
4. The intestines, by a wave motion produced by their muscular coat, effects the necessary mixing and movement of the food mass.

4. Pleasing flavors stimulate the flow of gastric juice and create appetite. Knowledge of the use of soups, extractives, and seasonings, and how to retain natural flavors is useful.

5. Even the sight of food may influence the appetite for it. It is of value to know how to serve food properly.

6. Thorough mastication and mixing of the food with saliva in eating is a very helpful aid to digestion.

7. Moderation,—not over-eating or eating at all hours,—is necessary in order not to exhaust the stomach or cause indigestion or other disorders of the body.

8. A pleasant frame of mind when eating, induced by pleasing surroundings, agreeable company and conversation, and absence of worry,—all favor good appetite and good digestion. To have all things contribute to cheerfulness at mealtime, is a supreme test of good housekeeping.

It will be seen that those who control the selection and preparation of food have far-reaching influence on the health and, therefore, on the happiness of those whom they serve. It is the purpose of domestic science studies to teach the principles of foods and their preparation and use, and the application of those principles.

LESSON 7

CARBOHYDRATES—FRUIT

Definition.—Fruits, in the popular sense, are the seed vessels of plants.

COMPOSITION OF FRUIT

Fruit	Protein per cent	Carbohydrate per cent	Fat per cent	Cellulose (crude fiber) per cent	Mineral matter per cent	Water per cent
Apples	.4	13.	.5	1.2	.3	84.6
Apricots	1.1	13.4	—	—	.5	85.
Bananas	1.3	21.	.6	1.	.8	75.3
Blackberries	1.3	8.4	1.	2.5	.5	86 3
Cherries	1.	16.5	.8	.2	.6	80.9
Cranberries	.4	8.4	.6	1.4	1 5	88.9
Currants	1.5	12.8	—	—	.7	85.
Grapes	1.3	14.9	1.6	4.3	.5	77 4
Oranges	.8	11.6	.2	—	.5	86.9
Peaches	.7	5.8	.1	3.6	.4	89.4
Pears	1.	15.7	.5	1.5	.4	80.9
Pineapples	.4	9.3	.3	.4	.3	89.3
Plums	1.	20.1	—	—	.5	78.3
Black raspberries	1.7	12.6	1.	—	.6	84.1
Red raspberries	1.	9.7	—	2.9	.6	85.8
Strawberries	1.	6.	.6	1.4	.6	90.4
DRIED FRUITS						
Apples	1.6	62.	2.2	6.1	2.0	26.1
Apricots	4.7	62.5	1.	—	2.4	29.4
Currants	2.4	71.2	1.7	3.	4.5	17.2
Dates	2.1	74.6	2.8	3.8	1.3	15.4
Figs	4.3	68.	.3	6.2	2.4	18.8
Pears	2.8	66.	5.4	6.9	2.4	16.6
Prunes	2.1	71.2	—	2.1	2.3	22.3
Raisins	2.6	73.6	3.3	2.5	3.4	14.6

Composition.—Fresh fruits contain water (75 to 90 per cent), sugar, cellulose, acids, and salts, with very little, if any, protein or fat. When ripe, fruits contain no starch,

for the ripening process changes the starch to sugar and gums. One of the gum-like substances is pectin, a substance in plants similar to gelatin in meat.

Kinds.—There are many kinds of fruit. The most common fresh fruits are apples, peaches, pears, cherries, plums, grapes, bananas, pineapples, and berries.

Food Value.—Most fresh fruits are low in food value; but they refresh and cool the system and furnish us with mineral salts, of sodium, calcium, phosphorus, etc., which purify the blood. The large amount of cellulose aids digestion, as it supplies bulk to the food and excites the flow of the digestive juices. The acids which fruits contain stimulate the appetite for other food. Dried fruits have for their chief food value a high percentage of sugar.

The common *dried fruits* are prunes (dried plums), raisins (dried grapes), figs, dates, apricots, and apples.

Rules for Eating Fruit.—1. Use only sound, ripe fruit. Unripe fruit is not digestible, unless cooked, and overripe fruit is of inferior flavor and is apt to interfere with digestion.

2. Fruit from street venders should not be used, as it is nearly always too ripe and unclean.

3. Do not eat acid foods with milk or cream. Why?

4. Cook overripe fruit to make it safe for use.

5. Use sweet fruits, as dates and figs, with cereals, since they supply the necessary sugar.

6. Do not swallow the tough skins of fruits or the seeds of such fruit as the grape and apple.

7. Serve fruits cold.

8. Serve fruits in season. They are more economical.

Care of Fruit.—1. Fruit should be kept covered and cool.

2. Wash or wipe off all fruit when it comes from the market. Rinse off berries quickly and drain.

3. Do not soak fruit, as it loses its flavor.

4. Cook fruit in dishes other than tin, as the acid acts on tin and forms a poison dangerous to the body.

5. Pare peaches just before serving, for they discolor quickly.

Cooking Fruit.—Fruit is usually either baked or stewed.

Baking is used with large, watery, whole fruit; as, peaches, apples, or pears.

Stewing.—Cut large fruit in pieces. Leave small fruit and berries whole. Put into a saucepan with one-half as much water as fruit, and allow ¼ to ½ c. of sugar to each pint of fruit. The juice must cover the fruit. If it does not, add more water. Cook fruit until soft, but not mushy. If more sugar is needed, add it when nearly done. If the sirup is too thin, remove the fruit and boil down the sirup; then pour it back over the fruit. Hard fruits, like quince, should be cooked until tender before adding the sugar. Cook cranberries and strawberries without sugar; add it just at the last. The berries are a brighter red and the jelly clearer than when cooked with the sugar, besides less sugar will be required. Why?

Dried fruit.—Wash fruit well in several waters. Soak the fruit in fresh water several hours or over night. Cook until tender; then sweeten to taste and cook a few minutes longer.

APPLICATION

1. Baked Apples

Method.—Pare and core good, uniform apples. Put into a baking pan, fill the center of each apple with sugar, and add a bit of butter on the top. Add enough water to cover the bottom of the pan. Cinnamon or nutmeg may

be sprinkled on top if desired. Bake in a hot oven until soft; baste with the juice in the pan.

2. Apple Sauce

6 tart apples
½ c. water
½ c. sugar
Small piece of lemon rind
6 whole cloves (if desired)

Method.—Wipe, core, peel, and quarter the apples. Some apples may be cooked with the peel. Put the water, sugar, and lemon rind into a saucepan and cook 4 or 5 minutes; then add the apples. Cook until tender, being careful not to mash the apples much; remove the lemon peel and cloves and serve cold. If apples are quite soft and cook up much, mash them or put through a vegetable press.

(*Each two use* 1 *apple.*)

3. Cranberry Sauce

1 pt. cranberries
2 c. water
1 c. sugar

Method.—Pick over and wash the cranberries. Put into the saucepan with the water and cook about 10 minutes; then add the sugar the last few minutes of cooking. Cranberries cooked without the sugar, and uncovered, retain their color and make a clearer sauce.

(*Each two use* ¼ *rule.*)

4. Stewed Prunes

1 lb. prunes
1 qt. water
⅓ c. sugar
2 or 3 slices of lemon

Method.—Wash the prunes thoroughly; put in clean water and let soak over night. Next morning put the prunes on to cook in the same water they soaked in; cook slowly, covered, till the skins are soft. Add the sugar and the lemon juice when nearly done. Apricots are cooked in the same way.

(*Basis for* 2 *girls,* ⅛ *rule.*)

5. Fruit Cocktails

These are served as an appetizer at the beginning of a dinner, and may be made from a variety of fruits. Serve them in dainty tall glasses, or in baskets made from half oranges or grapefruits.

Orange and Grapefruit.—Mix equal parts of diced orange and grapefruit pulp. Sprinkle with sugar and a little lemon juice. Place on ice until chilled. Fill the chilled glasses just before serving, garnish with wedges of fresh or preserved pineapple and a candied or Maraschino cherry.

Strawberry and pineapple make a nice combination, as do also **grapefruit and strawberries.**

Watermelon. — Cut with a vegetable cutter into little one-inch balls. Chill and serve in a tall glass with chipped ice. Garnish with mint.

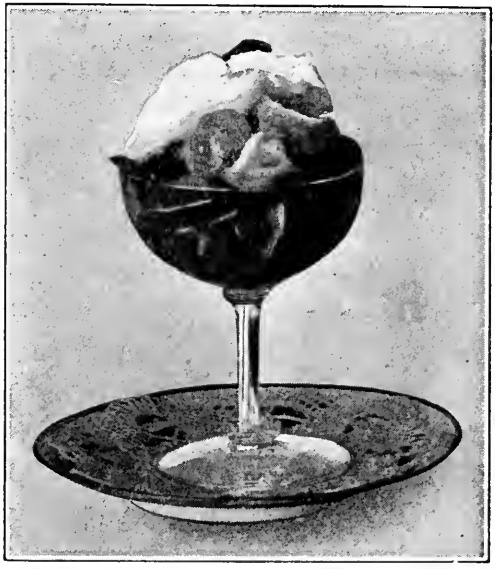

Fig. 8. A fruit cocktail.

LESSON 8

SOUPS

Kinds.—There are two kinds of soup: (1) soups **with** stock and (2) soups without stock.

Soups with stock have as a basis the juices of meats, and are divided into several classes, which we shall study in connection with the meat lessons.

Soups without stock have as a basis milk or cream, together with the pulp of vegetables. There are three divisions of soups without stock:—

(*a*) Cream soup, made of vegetables or fish together with milk, cream, and seasoning or with a thin white sauce.

(*b*) Purées are made of boiled vegetables or fish put through a strainer, together with a thin white sauce. These contain more vegetables than the cream soups and are therefore thicker.

(*c*) Bisques are made of shellfish or vegetables with thin white sauce, and are served with fish dice.

Soups without stock, when allowed to stand, separate; that is, the vegetables separate from the milk or cream, unless bound together. Materials that bind or keep the solid part from settling to the bottom are called binding materials, examples of which are flour and cornstarch. The best way of binding materials is by using a thin white sauce.

Left-over vegetables or those too old to serve whole are good for use in cream soups. They make an economical dish, as well as a very nourishing one. Removing the hard cellulose fiber by forcing the pulp through a strainer makes cream soups very easily digested.

General proportions for cream soups or soups without stock are: About one half as much vegetable pulp as white sauce, plus the seasoning—salt and pepper.

Proportions for *white sauce:*—

2 tbsp. butter Salt and pepper
1 tbsp. flour to 1 c. of milk

If the vegetables contain a large amount of starch, use less flour. If lacking in starch, use from 1 to 3 tbsp.of flour.

Name an example where less flour is necessary.

Name an example where more flour is necessary.

General Directions for Soups without Stock.—

1. Cook the vegetables in water until very soft; then press them through a vegetable press or strainer. Add the water in which the vegetables were cooked.

2. Make the white sauce in a double boiler, using Method 2, Lesson 4.

3. To make the soup richer, use part cream instead of all milk, or add beaten egg or a couple of spoonfuls of whipped cream to the soup just before serving.

4. Combine vegetable pulp and white sauce and serve. Do not let soup stand long, as it is likely to become too thick.

5. Serve soups very hot.

6. Serve crisp crackers or toasted bread in sticks or cubes with soup.

Vegetables best suited for soups are: potatoes, peas, beans, celery, tomatoes, asparagus, carrots, and turnips. Onions are used for additional flavoring in any soup, if desired.

Food Value.—Soups without stock have a higher food value than soups with stock. The milk or cream of the white sauce furnishes the protein to build and repair tissue and the vegetables contain starch and mineral substances. Soups are easily digested, are nourishing, and are appetizers for the courses that follow.

APPLICATION

1. Cream of Pea Soup

1 pt. can of peas
1 pt. cold water
1 tsp. sugar
1 qt. thin white sauce

Method.—Boil the peas in the water until soft. Rub them through a coarse strainer or vegetable press, and to the pulp add the water the peas were cooked in. Make a thin white sauce and combine with the peas.

(*Each 2 use ⅔ c. white sauce and ½ c. peas.*)

2. Cream of Corn Soup

1 pt. can of corn
1 pt. cold water
1 slice onion
1 qt. thin white sauce

Method.—The method is the same as in Cream of Pea Soup.

3. Cream of Potato and Cream of Celery Soup

Method.—These are both made with the same proportions and in the same way as Cream of Corn Soup.

(*Each 2 use same basis as in* 1.)

4. Cream of Tomato Soup

1 c. tomatoes
¼ tsp. soda
2 tbsp. flour
1 pt. milk
2 tbsp. butter
1 tsp. salt
Pepper

Method.—Cook the tomatoes for 10 minutes. Remove from the fire, strain, and add the soda. Return to the fire and keep hot until ready to serve. Make a thin white sauce of the rest of the ingredients, using Method 1, Lesson 4. Keep sauce hot until ready to serve. Immediately before serving pour the tomato into the white sauce. This soup will curdle if combined too long.

(*Basis for 2 girls, ⅔ c. white sauce, ⅓ c. tomatoes.*)

5. Croutons

Method.—Cut slices of bread ½ inch thick; then cut into cubes. Put in the oven and toast to a delicate brown. Serve with soup.

(*Housekeepers prepare croutons for class.*)

LESSON 9

PROTEIN—EGGS

THE eggs most commonly used in cooking are hens' eggs, although eggs from other domestic fowls and wild birds are used where available.

Structure.—A hen's egg consists of the following parts:—

1. The shell.
2. Two tough membranes just inside the shell.
3. The white, a clear, jelly-like substance.
4. The yolk, which is surrounded by a thin membrane and held in place by—
5. Two twisted cords.
6. The embryo, in the yolk. This embryo is the living part of the egg, from which the chick grows, much as the wheat grows from the germ in the grain. The contents of the egg furnish the embryo food, just as the starch does the germ of the grain.
7. Air space, found at the large end of the egg between the two membranes.

Composition.—*The shell* is composed of mineral matter, chiefly lime.

The white, or *albumen*, is nearly pure albumin and water. Albumin is a sticky substance, and is a protein.

The yolk contains much fat or oil, some albumin, mineral matter, and water. The mineral matter consists of phosphorus, calcium, iron, lime, and sulphur.

What food principle is lacking in eggs?

COMPOSITION OF EGGS

Protein	Fat	Mineral matter	Water
14.9%	10.6%	1%	73.5%

Food Value.—Owing to the large amount of protein in eggs, they are valuable as a tissue-building food, and may be used as a meat substitute. One pound of eggs, usually about nine, contains as much nutriment as one pound of meat.

Raw eggs and those properly cooked are very easily digested and assimilated in the body.

Trace protein through the process of digestion.

Tests for Fresh Eggs.—1. Fresh eggs have slightly rough shells.

2. Fresh eggs sink to the bottom in a pan of cold water. Stale eggs float. What is the reason for this?

3. Fresh eggs are clear when placed between the eye and a bright light in a dark room. Stale eggs are cloudy. This method of testing is used extensively in egg markets and is called "candling."

Care of Eggs.—1. As soon as eggs come from the market wipe any soiled ones with a damp cloth, and put only clean, fresh eggs in the ice box.

2. Keep eggs in a cool, dry place.

3. Do not keep in a place containing food with strong odors, which eggs readily absorb.

4. Egg yolks will keep fresh for some time if covered with clean, cold water and kept in a cool place.

Uses for Eggs.—Eggs are used very extensively in the dietary and in cooking. Name as many uses as you can and state why they are so used.

Preservation of Eggs.—Preserve only fresh, clean eggs in the spring and early summer, when they are plentiful and cheap. Any method which excludes the air helps to keep eggs fresh. The packing or preserving material for eggs must be absolutely clean, since eggs are easily tainted in flavor. Eggs may be preserved in the following ways:—

1. Pack dry in sawdust, salt, bran, oats, or sand, with the small end down.
2. Put in jars containing salt brine, limewater, or water glass enough to cover the eggs.
3. Coat with paraffin, lard, or oil.
4. Put in cold storage.

What is the object of preserving eggs? What causes eggs to spoil?

The Water-glass Method.—The water-glass method is the most satisfactory home means of preserving eggs, and is very easily applied. For every quart of water glass (silicate of soda) solution use 9 quarts of boiled water that has been cooled. Mix the ingredients thoroughly and put into a clean stone jar. Place the eggs in the solution and see that all are covered by several inches of the liquid. Keep the jars in a cool place and well covered to prevent evaporation.

Eggs preserved in this manner are as good as fresh eggs for all cooking purposes.

The Cold Storage Method.—Eggs are produced in greatest abundance in the spring and summer months. Formerly they were very plentiful and very cheap during those months, and very scarce and expensive in the winter. Now, the cold storage system and refrigerator cars have changed this. Both the time of marketing and the market area of eggs have been extended, and as a result egg prices have become more uniform throughout the year.

When properly handled and kept at a temperature just above freezing, 32° to 40°F., cold storage eggs are wholesome. They are usually kept not over eight or nine months.

EFFECT OF HEAT ON ALBUMEN

Experiments.—1. Put some egg white into a tumbler of cold water and shake or beat well. Notice any results.

2. Put some egg white in boiling water. What happens?

3. Put an egg into boiling water, remove from the fire and let stand ten minutes. Notice the consistency of the white.

4. Put an egg into boiling water and boil ten minutes; remove from the fire and compare with the result of Experiment 3.

5. Put an egg into cold water and bring to the boiling point. Remove from the fire and compare with Experiments 3 and 4.

From the experiments what do you find is the correct temperature for cooking albumen? Why? Compare with the temperature for cooking starch.

Cooking of Eggs.—Eggs and egg mixtures must be cooked at a moderate temperature, of from 160° to 185° Fahrenheit.

How to Break an Egg.—1. Hold the egg in the left hand and strike it with a knife blade. Press the thumbs into the crack and pull the shell apart.

2. Or strike the egg against the side of a mixing bowl and then open with the thumbs.

To Separate White from Yolk.—Crack egg, hold yolk in one half of the shell and let the white run on a plate. Then slip the yolk to the other half of the shell, holding the edges of the shell together, and drain off all the white. Put yolk into a bowl.

NOTE.—Always break eggs separately into a dish to make sure they are fresh before adding to other eggs or to a mixture.

APPLICATION

1. Soft-Cooked Eggs

Method.—(*a*) Allow about one pint of water, or enough to cover two eggs. Place eggs in cold water in a saucepan.

Bring water to boiling point slowly. Remove eggs and serve in hot cups.

(*b*) Place eggs in a saucepan containing enough boiling water to cover. Let stand on back of the stove from 8 to 10 minutes.

2. Hard-Cooked Eggs

Method.—Place eggs in a saucepan containing enough boiling water to cover. Let stand where water will keep hot, but not boil, for 40 or 45 minutes; or boil slowly for 8 minutes.

3. Poached Eggs

Method.—Prepare a slice of buttered toast for each egg. Cut with a round cutter or muffin ring. Keep warm. Have ready a shallow pan containing enough salted water to cover the eggs (let the water boil and then remove pan to back of stove). Break each egg separately into a saucer and slip it gently into the water, being careful that water does not reach the boiling point. Cook until the white is firm and a film forms over the top of the yolk. Remove the egg from the water with a skimmer or a griddle-cake turner. Drain, and place the eggs on toast. Garnish with parsley, if you like. An egg poacher may be used.

(*Basis for 2 girls, 1 egg.*)

4. Eggs à la Suisse

4 eggs
½ c. cream
1 tbsp. butter
Salt
White pepper
Cayenne
2 tbsp. grated cheese

Method.—Melt butter in a small omelet pan; add cream. Break eggs separately into a saucer and slip gently into the pan, one at a time; sprinkle with salt, pepper, and a few grains of cayenne. When whites are nearly firm, sprinkle with cheese. Finish cooking, and serve on buttered toast. Strain cream over the toast.

5. Baked Eggs

Method.—Butter a ramekin or muffin tin. Line with fine cracker crumbs. Break egg into a cup and slip into ramekin; season, and cover with buttered crumbs. Bake in a moderate oven until crumbs are brown.

6. Baked Egg in Potato

Method.—Remove inside of each baked potato, mash and season. Refill shell, leaving room for an egg. Break the egg into the potato, bake until firm.

Eggs may also be baked in small tomatoes. Cut a slice from stem end of tomato. Scoop out pulp and slip in an egg. Season, cover with buttered crumbs, and bake.

7. Stuffed Eggs

1 tsp. vinegar
¼ tsp. mustard
1 tbsp. melted butter
Salt and pepper
Hard-boiled eggs

Method.—Put eggs into cold water, bring slowly to boiling point, and boil 3 to 5 minutes. Drop into cold water. Remove shell, cut egg in half lengthwise, take out the yolk, mash, mix with mixture, and refill whites.

8. French Toast

2 eggs
½ tsp. salt
1 c. milk
6 slices of bread

Method.—Beat the eggs slightly, add salt and milk. Strain and dip the bread in the mixture, cook on a hot well greased griddle until brown, turn and brown the other side.

The center of each piece of bread may be cut out with a small biscuit cutter and after it is placed on the griddle an egg slipped into the center of each piece. Saute as plain French Toast.

LESSON 10

PROTEIN—EGGS (Continued)

Beating Eggs.—Eggs are beaten in order to introduce air into a mixture. The elasticity of the albumen of the egg makes it possible to enfold air into the egg. Is it possible to introduce air into materials like sirup, flour, paste, etc.? Why not?

Ways of Beating.—1. Beat yolks in a bowl with a Dover beater.

2. Beat whites on a platter or in a large bowl with a wire whisk or a fork.

Consistency when Beaten.— *Yolks* when well beaten are thick and lighter colored than before beating.

Whites are beaten *stiff* when the whisk comes out clean.

Whites are beaten *dry* when the gloss is gone and the beaten mixture comes off the beater easily.

Methods of Combining Mixtures.—(1) Stirring, (2) beating, (3) folding, and (4) cutting.

Stirring is used in combining when air is not necessary to the ingredients. Use circular motion, round and round until all is mixed.

Beating is used to introduce air into a mixture, and is done by lifting the mixture up and over on a spoon with a rapid movement. Continue until the mixture is full of bubbles.

Folding is used (*a*) to add a beaten mixture to another; as, in adding beaten whites to a batter; or (*b*) to add ingredients, as baking powder, for example, to a batter having beaten eggs in it, without breaking the air bubbles already contained in the mixture.

Folding is done by carefully turning the mixture over and over and drawing it constantly from the bottom of the bowl to the surface.

Cutting is mixing by means of knives, as is done with shortening.

APPLICATION

1. Puffy Omelet

3 eggs — ¼ tsp. salt
3 tbsp. water — White pepper
1 tbsp. butter

Method.—Separate yolks from whites of eggs. Beat yolks until thick; add water and salt. Fold in beaten whites of egg. Melt butter in an omelet-pan, turn in egg mixture, spread evenly, cook slowly, occasionally turning the pan so that the omelet may brown evenly. Then when it is well puffed up and delicately browned underneath place pan in hot oven to finish cooking the top. The omelet is cooked if it is firm to the touch when pressed with the finger. Fold, and turn on a hot platter. Serve at once.

(*Basis for* 2 *girls*, 1 *egg.*)

To Fold an Omelet.—Hold the omelet pan by the handle with the left hand. Crease the omelet slightly across the center at right angles to the handle of the pan. Slip the spatula under the edge of the omelet farthest from the handle of the pan and, tipping the pan up, fold the omelet over half way towards the handle. With the right hand invert a hot plate over the pan, and with a quick movement turn the omelet out of the pan upon the plate. Garnish with parsley and serve *immediately*. The success of an omelet of this kind depends upon the amount of air enclosed in the egg and the expansion of the air in cooking.

2. Fancy Omelets

A *fancy* omelet may be made by the addition of grated cheese, minced ham, or other meat sprinkled over the top

Fig. 9 Folding an omelet.

just before folding. Parsley, oysters, or vegetables finely cut may also be used.

A *sweet* omelet is made by spreading soft jelly or preserves and powdered sugar over the top.

3. French Omelet

3 eggs
1 tbsp. hot water or milk
½ tsp. salt
1 tbsp. butter
Pepper

Method.—Beat eggs slightly, add water and seasoning. Heat the omelet pan, melt the butter and let it run over the bottom and sides of the pan. Turn in the mixture, and cook slowly. When thick at one side, roll the mixture over to the other side, like a jelly roll. When all is evenly cooked, roll out upon a hot plate. Garnish and serve.

One egg is allowed to each person for any omelet.

4. Scrambled Eggs

5 eggs
½ c. milk
½ tsp. salt
⅛ tsp. pepper
2 tbsp. butter

Method.—Beat eggs slightly, add salt, pepper and milk. Melt butter in an omelet pan, turn in egg mixture and cook slowly, scraping from the bottom and sides of the pan when the mixture first sets. Cook until creamy. Turn it upon a hot dish and serve at once.

5. Scrambled Eggs with Tomato Sauce

6 eggs
1¾ c. tomato sauce
4 tbsp. butter
2 tsp. sugar
1 slice onion
½ tsp. salt
Pepper

Method.—Simmer tomatoes and sugar. Fry onion in butter 3 minutes, and add eggs which have been slightly beaten and added to tomato sauce. Add a speck of soda to the tomato sauce. Stir slowly until eggs are cooked and jelly-like.

6. Eggs à la Goldenrod

3 hard-boiled eggs	½ tsp. salt
2 tbsp. butter	⅛ tsp. pepper
2 tbsp. flour	5 slices toast
1 c. milk	Parsley

Method.—Mix flour and butter together until smooth; add the milk slowly, stirring constantly; cook until smooth. Add salt and pepper. Separate yolks from whites of eggs. Chop whites fine and add them to the sauce. Cut 4 slices of toast in halves lengthwise, arrange on platter, and pour the sauce over them. Force the yolks through a strainer and sprinkle over the top. Garnish with parsley.

7. Creamy Omelet

1 c. white sauce No. 11	½ tsp. salt
3 eggs	1 tbsp. fat

Method.—Follow the rule for puffy omelet, using ½ c. of white sauce in place of the water. When the omelet is done, turn into a hot platter and pour the remainder of the white sauce around it. Peas, cheese, or meat cubes may be added to the white sauce before pouring around the omelet.

LESSON 11

PROTEIN—MILK

Milk is such a common and important food and is so closely connected with the public health that it deserves careful study. Good milk is a yellowish-white liquid with a faint odor and a sweet taste. When allowed to stand, a thick cream rises to the top, and there is no sediment. Rich milk clings to the sides of the glass; poor milk has a bluish-white color and forms little cream.

Composition.—Different samples of milk may vary greatly in composition, especially in the amount of fat. An average composition is as follows:—

Water	Protein	Carbohydrates	Fat	Mineral matter
87%	3.3%	5%	4%	.7%

The protein in milk is casein and albumin, in the proportion of about six to one. The casein is precipitated by the presence of acid, as when lactic acid is formed in the souring of milk. The ferment rennin, found in the stomach of milk-drinking animals, also causes coagulation of the casein. The albumin is coagulated by heat.

The carbohydrates of milk are in solution in the form of lactose, or milk sugar. A part of this is changed to lactic acid by the action of the bacteria that cause milk to sour.

The fat in milk is held in suspension in the form of minute globules, so finely divided that as many as ten billion may be contained in a single drop. These gradually rise to the surface, forming cream.

The mineral salts include all those found in the animal body, such as lime, phosphates, potash, and others.

Food Value.—Milk is a complete food, since it contains all the food principles, and therefore builds and repairs tissues and gives heat and energy. It serves much the same purpose to the young of animals as the egg serves the unhatched chick. The large amount of water in milk is useful for the young in building and filling out the tissues. For an older person, however, milk contains too much water and not enough carbohydrates; about five quarts a day would have to be consumed to supply the body needs. Yet milk is really a concentrated food, since fully a third of the solid portion is protein and an ther third is fat. These nutrients are in such finely divided form as to be very easily digested. This is especially true when milk is taken along with other foods. Milk should be sipped slowly, and the greatest benefit is derived when taken at regular intervals or at night before retiring.

Souring of Milk.—As has been explained, milk is soured by lactic acid produced by bacteria. When milk is warm the bacteria increase very rapidly, thus hastening souring. The acid separates the protein (casein) from the water and forms the curd (the thick part), leaving the whey (the liquid part). The whey contains, besides water, nearly all of the milk sugar, which gives to it its chief food value. Clean fresh milk carefully handled to exclude dirt should keep sweet for several days.

Adulteration of Milk.—The fat is so valuable for cream or butter that sometimes much of it is removed before the milk is sold. The commonest method of adulteration is to add water, which, unless much is added, is hard to detect. What is worse, chemical preservatives are sometimes added to kill bacteria or retard their growth, in order to keep the milk sweet and carry it great distances. The chemicals used are boric acid, formalin, and salicylic acid.

These are very harmful, especially to infants, and conceal unclean methods of handling milk. Such milk can be detected when it does not sour easily or becomes thick and develops a bitter taste. State and national pure-food laws and city ordinances are gradually doing away with these abuses.

Purchase and Care of Milk.—No other food so quickly absorbs odors and impurities and requires more careful handling than milk. It is often a common way of spreading certain diseases, such as diphtheria, typhoid, and scarlet fever. The secret of clean milk is, production under clean surroundings, prompt cooling, and keeping it cool and protected from dust and dirt until it is used in the home. Some rules to follow are:—

1. Buy milk from sources you know to be clean and pure.
2. Buy milk in covered bottles rather than in bulk.
3. Keep milk in scalded glass or earthen dishes, or in the original bottles.
4. Keep milk cold, for then germs develop much less rapidly.
5. Keep milk from flies, dust, and odors by keeping covered.

Pasteurization.—In times of disease epidemics or when there is a suspicion that the milk is not pure, it is pasteurized to kill dangerous germs. Pasteurization consists in heating the milk to a temperature of from 150° to 180° F. for 20 minutes or more and then rapidly cooling it to 50° F. or lower. Pasteurized milk is not necessarily clean milk,—in fact sometimes farmers and dealers rely too much on this system and are not so careful to maintain a pure product. Pasteurization can easily be done in the home.

Sterilization consists in heating milk to the boiling point for 15 or 20 minutes. The process may be repeated

after an interval to make the result doubly certain. This destroys practically all bacteria in it, but it has the disadvantage that the taste is spoiled for many persons and also that the milk is probably made less digestible.

Scalding Milk.—Heat milk in a double boiler until bubbles appear around the edge of the milk. This occurs at about 160° F. and this heating makes milk safer for use, as it kills many forms of germs. Boiling milk or scalding it too long makes it less digestible. What substance in milk should be cooked below the boiling point?

Condensed Milk.—This is milk that is evaporated in vacuum pans to one-third or one-fourth its original bulk and then sealed in air-tight cans, in which it will keep indefinitely. Sometimes cane sugar is added to increase its keeping qualities. Condensed milk enables milk to be carried and kept in many places, such as on board ship and in the tropics, where fresh milk is not obtainable. When it is to be used, increase its volume two or three times by adding water. It may then be used the same as fresh milk.

APPLICATION

1. Baked Custard

4 sc. c. scalded milk	½ c. sugar
4 to 6 eggs	1 tsp. vanilla
Few gratings of nutmeg	Pinch of salt

Method.—Beat the egg slightly, add the sugar, and then the scalded milk slowly. Add the flavoring and stir until the sugar is dissolved. Pour into cups or into one large baking dish, grate a little nutmeg on top, set the cups in a pan of hot water and bake in a moderate oven until a knife piercing it will come out clean. Do not allow the water in the pan to boil. Serve cold. This serves 7 persons.

(*Basis for 2 girls, ¼ rule.*)

2. Soft Custard

Method.—Same recipe as for Baked Custard. Combine ingredients by same method, but cook in a double boiler. Stir constantly until the mixture forms a coating on the spoon. Remove instantly from the hot water; flavor, and cool.

(*Basis for 2 girls, ⅛ rule.*)

3. Caramel Custard

4 c. scalded milk
4 eggs or 6 yolks
1 tsp. vanilla
1 c. sugar

Method.—Melt the sugar to a light brown sirup in a saucepan over a hot fire. Add the scalded milk very gradually and cook until free from lumps. Pour this gradually into the slightly-beaten eggs. Add the flavoring and bake as in Baked Custard.

(*Basis for 2 girls, ¼ rule.*)

4. Chocolate Custard

2 c. milk
3 eggs
½ c. sugar
½ sq. Baker's chocolate
2 tbsp. water
½ tsp. vanilla
Pinch of salt

Method.—Scald the milk. Melt the chocolate, add half the sugar and the water, and cook until smooth. Pour the scalded milk into the chocolate mixture and stir until it is smooth. Add the eggs slightly beaten, the remainder of the sugar, and the salt. Strain into buttered molds and bake the same as Baked Custard. Whipped cream or a meringue is nice added to the top.

5. Custard Soufflé

2 tbsp. butter
2 tbsp. flour
2 tbsp. sugar
1 c. milk
4 eggs
Fresh or preserved fruit
(Peaches or apricots are best)

Method.—Scald the milk in a double boiler. Stir the flour and the butter together, add the scalded milk grad-

ually, and cook 5 minutes, stirring constantly. Beat the egg yolks and add the sugar; then add to the milk. Set the mixture away to cool. When cool add the stiffly beaten whites of eggs, pour into a buttered baking dish, and bake 30 minutes. Serve at once. Fresh or preserved fruit is very good with this, and is added in a layer at the bottom of the dish and the custard soufflé poured over it.

Tapioca may be used in place of the flour to make a pleasing change in the rule.

LESSON 12

MILK PRODUCTS

THE chief products derived from milk are cream, butter, and cheese.

CREAM

Separation of Cream.—Formerly milk was allowed to stand in pans or cans and the cream skimmed off by hand. Now the cream separator is used everywhere to separate cream from milk. In this machine the fresh milk is made to revolve very rapidly, causing the heavier parts to be thrown outward and the cream to be crowded to the center. The skim milk passes off through one spout and the cream through another.

Standard Cream.—Cream is required by law to contain at least 18 per cent butter fat. The amount of fat may vary from 10 to 40 per cent or more. The value of cream, of course, is directly in proportion to the amount of fat it contains, other factors, like cleanliness, being the same.

Whipping cream is best when it contains 25 per cent or more of fat and is from 12 to 24 hours old. Pasteurized cream and separator cream will whip readily if it is at first kept cold, down to about 30° F., for about two hours.

Skim Milk.—After the cream is removed from milk, what remains is skim milk. It contains about 4 per cent of protein and nearly 5 per cent milk sugar, which makes it a cheap, nutritious food. It should sell for about half the price of whole milk.

Where whole milk is purchased, the cream may be removed for separate use and the skim milk used in cooking, since fat in some other form is usually added to a cooked

dish. This decreases the cost of milk and does not affect the flavor of the dish; and cream is quite an expensive food.

Skim milk may be used for cream soups, white sauces, cakes, etc., in place of whole milk.

BUTTER

Manufacture of Butter.—Butter is made from the fat of milk by the process of churning, which causes the fat globules to collect into granular masses. It is then washed to remove protein matter, which decomposes easily, and is salted to preserve it and give it flavor. It is then made into prints or packed into tubs for the market.

Butter may be made from either sweet or sour (ripened) cream. Sweet-cream butter has a very delicate flavor and does not possess good keeping qualities because it is not usually salted. The ripening of the cream and the added salt give to butter a stronger flavor which is preferred by most persons and makes it better suited for marketing purposes. Nearly all the butter made in the United States is produced in well-regulated creameries.

Composition of Butter.—The law requires that standard butter should contain not less than 82.5 per cent of milk fat, for the butter-maker can make butter with little or much water as he chooses. One authority gives the following as an average composition:—

Fat	Casein	Salt	Water
85%	1%	3%	11%

The quality of butter depends on the breed of cow, the kind of feed given, but principally on the care with which the milk and cream are handled. Butter has the best color and flavor in the spring and summer when the cows are on fresh grass. The flavor is influenced greatly by

the kind of bacteria that develops in the milk and cream. The cattle of the Guernsey breed produce butter of a naturally rich, yellow color.

Food Value.—Butter is one of the most easily digested fats, and is very appetizing and healthful. With what foods should it be eaten, and why?

Buttermilk is the part of the milk or cream that remains when the butter has been removed. It has very much the same composition and food value as skim milk, being a cheap and wholesome tissue-building food. The nutrients are very easily digested, and the acid is believed to exert a healthful influence in the body and is especially recommended to those suffering from stomach disturbances.

Butter Substitutes.—Nutmargarines, oleomargarines and vegetable oils are the chief butter substitutes. Oleomargarine has for its basis beef fat, lard, vegetable oil and milk. Nutmargarine is made from the extracted oil of nuts. When properly prepared they are clean and nutritious, and are much better than the butter from small dairies where the standards and sanitary conditions are not of the best. They may be substituted for butter in cooking, and are more economical. The odors from old and rancid butter are often removed by melting the butter and blowing air through it, after which the material is churned in milk and then resold as *renovated butter.*

To distinguish butter substitutes from butter, dissolve a small quantity in a saucepan and bring to a boil. Beef fats boil noisily and make little foam; butter makes very little noise and much foam.

CHEESE

Cheese is the casein and fat of milk, drained, salted, and pressed. It is an important means of putting milk, a bulky and perishable food, into concentrated form, ena-

bling it to be stored for future use and transported to distant markets.

Manufacture of Cheese.—Sweet cow's milk is most used in cheese making, but milk from the goat and ewe are are also used to some extent. Most of the cheese produced in this country is made from whole milk, but cream, partially-skimmed milk, and skim milk are also used, depending on the kind of cheese and the desires of the manufacturers.

The main steps in the making of cheese are nearly the same in all varieties. The casein and fat are precipitated by means of rennet. The curd is then finely divided and the whole mass is heated to a temperature from 96° to 108° F., resulting in the complete separation of the curd from the whey, which is drawn off. The curd is then salted and pressed and set away to cure, or ripen, for the market. The curing process, which may last from a few days to a year or longer, depending on the kind, results largely in the development of flavors in cheese. This is brought about by the action of various kinds of bacteria and molds. By varying the fat content and the manner of handling the milk and curd, and by regulating the kind of bacteria or mold in the ripening process, many varieties of cheese are made.

Kinds of Cheese.—It is hard to classify the hundreds of kinds of cheeses being manufactured. In general, they may be divided as *hard* and *soft* cheeses, depending largely on the amount of water they contain. They are also sold as cream, whole-milk, and skim milk cheeses, depending upon whether fat has been added to or taken from the milk.

More than 300 million pounds of cheese are made yearly in the United States, and three-fourths of it is known as

factory or American cheese, which is a variety of the kind known as cheddar. "Full cream" American cheese is made from whole milk; "cream" cheese, from cream; and "skim milk" cheese, from milk with all or much of the fat removed. Many of the foreign varieties are made and used in America and much foreign cheese is imported.

Hard Cheese.—Among the more common varieties of hard cheese are the following:—

Cheddar.—This is a mild-flavored cheese most common in this country. The American variety usually contains more water; whereas that made for export is firmer, contains less water, and is of better flavor. We need to learn to appreciate and demand the better make. When fresh it is rather soft, but when well matured is hard and grates readily. It is made in various forms, much in large cakes 15 or more inches in diameter and 5 or 6 inches thick. Pineapple is in smaller and more convenient form, being pressed firm and solid in the shape of a pineapple. *Sage* cheese is made with the addition of sage for flavor.

Swiss cheese is readily distinguished by its sweetish, mild flavor and by its large holes or eyes. Much of it is made in this country.

Edam cheese is made in Holland, and is round in form and stained red.

Parmesan is a very hard Italian, skim-milk cheese, often sold grated. It keeps well in any climate, but is rather high in price.

Soft Cheese.—Soft cheese is made for immediate use. Most varieties are relished for their high flavor; others, such as cream and cottage cheese, are not cured but are ready for use almost as soon as made. Some varieties are:—

Neufchâtel is made from whole or skim milk, is pressed into small rolls or blocks, and then set away for about four

weeks to be cured by a special mold which penetrates through every part. It comes wrapped in tinfoil.

Camembert has a pasty consistency, with a decided odor and flavor, which is produced by a reddish-brown mold. It is marketed in small, round, wooden boxes.

Limburger is made from either whole or skim milk, and has a reddish-yellow rind. Its odor is distasteful to most persons.

Roquefort is a soft or semi-soft cheese and contains a blue mold. It is made in France from sheep's milk and is cured in caves that have just the right, uniform temperature.

Cream cheese, true to name, is made from sweet cream, and is sold under various brands.

Dutch, or *cottage*, cheese is made from sour skim milk.

Composition of Cheese.—The composition of cheeses varies. In general, they may be regarded as composed of about one-third protein, one-third fat, and one-third water. The following table gives the composition of a number of common varieties, as reported by various authorities:—

THE COMPOSITION OF CHEESE

Kind	Water	Protein	Fat	Sugar	Mineral matter
	Per cent	Per cent	Per cent	Per cent	Per cent
Cheddar (green)	36.80	23.75	33.75	0.00	5.70
Swiss	36.10	28.00	29.50	3.30	3.10
Cream	36.33	18.84	40.71	1.02	3.10
Full cream	38.00	25.35	30.25	1.43	4.97
Skim milk	46.00	34.06	11.65	3.42	4.87
Limburger	35.70	34.20	24.20	3.00	2.90

Food Value.—Cheese has a high food value. Nearly all of the protein and fat of a gallon of milk is contained in

the pound of cheese made from it; it is therefore a very concentrated food. In general, it may be said that a pound of ordinary cheese is equal in food value to about two pounds of ordinary meat, a dozen or more eggs, and a pint of dried peas or beans. It may therefore be used as a substitute for meat, and is so used in many European countries.

The latest experimental evidence goes to show that while cheese may remain in the stomach a little longer than some other foods, due to the fact that the fat is so closely bound up with the protein, yet it is completely and easily digested in quantity without harmful results. In selecting cheese, it must be remembered that the stronger flavored varieties are much higher in price and are to be regarded as luxuries. The mild varieties have an equally high food value, are comparatively cheap, and could well be used more extensively in place of meat in American homes.

Cheese should be eaten along with bread, rice, macaroni, or similar food, to balance the carbohydrates and to furnish more bulk. When used at the close of a full meal, instead of as a part of it, cheese is likely to overtax the system with much protein and fat, unless proper care is taken in planning the meal.

Cooking Cheese.—Cheese may be served in a great variety of ways. It is used with eggs and milk to make fondu, soufflés, or rarebit; and is added to macaroni, potatoes, omelet, or creamed vegetables to form a substitute for meat. It is served with salads or on toasted crackers and in cheese straws. Cheese does not require long cooking, which toughens it, but is sufficiently cooked when melted. There is nothing to show that properly cooked cheese is any harder to digest than that uncooked.

APPLICATION

1. Cheese Soufflé

2 tbsp. butter
2 tbsp. flour
½ c. scalded milk
½ tsp. salt
½ c. grated cheese
3 egg yolks
3 egg whites
Cayenne

Method.—Melt the butter, add the flour, and, when well mixed, add the scalded milk gradually. Cook until it thickens, and then remove from the fire. Add the salt, cayenne, cheese, and the well-beaten yolks. Cool the mixture and add the well-beaten whites by cutting and folding. Pour into a buttered baking dish and bake 20 minutes in a slow oven. Serve at once. This serves 6 or 8 persons.

(*Basis for two, ⅓ rule.*)

2. Cottage Cheese

Method.—Place thick, freshly-soured milk or buttermilk over a pan of hot water, not boiling. When the milk is warm and the curd separates from the whey, drain in a cheesecloth and dry. Put the curd into a bowl and add salt, pepper, and cream to taste.

3. Cheese Straws (*a*)*

Method.—Roll pastry ¼ inch thick, and sprinkle one-half with grated cheese. Fold, press edges firmly together, fold again, pat and roll out ¼ inch thick. Sprinkle with cheese and fold and roll out a second time. Cut into strips 5 inches long and ¼ inch wide. Bake 8 minutes in a hot oven. Serve with salad. Cheese straws are good made out of left-over pie dough, and may be kept and freshened in the oven.

4. Cheese Straws (*b*)

½ lb. grated cheese
½ lb. butter
½ lb. flour

Method.—Cream the butter and stir into the flour, add the cheese and mix it in well. Add enough milk to soften

it for kneading. Knead it, and roll thin—about ⅛ inch thick. Cut in even sticks, as in rule (*a*) and bake until a light brown. Serve with salads. This rule makes 75 to 100.

5. Cheese Balls*

2 eggs 1 c. grated cheese
A few fine bread crumbs

Method.—Beat the whites of eggs to a stiff froth, add the cheese and the bread crumbs, and roll into small balls about 1 inch in diameter. Roll the balls in the yolks of the eggs, then in the fine crumbs, and fry in deep fat until a light brown color. Serve with salads.

6. Welsh Rarebit

1 lb. American cheese, grated 2 eggs
1 tsp. butter A few grains cayenne
1 c. cream or milk 1 tsp. mustard
1 tsp. salt ¼ tsp. soda
Squares of toast or crackers

Method.—Break the cheese in small pieces, or if hard grate it. Put it in a double boiler or chafing dish over a pan of hot water. Have the toast prepared and hot. Beat the egg well and add the seasoning, milk and soda to the egg. When the cheese is melted, stir in the egg mixture and the butter and cook 2 minutes or until it thickens a little. Serve on the hot toast or crisp crackers. If the cooking is not quite long enough the cheese is tough and stringy, and if cooked too long there is danger of curdling. Many use ale instead of cream. This serves 6 or 8 persons.

7. Welsh Rarebit (without eggs)

An inexpensive rarebit may be made without eggs by making a medium white sauce and adding grated cheese, seasoning of salt, cayenne and mustard.

* Recipes 3 and 5 may not be applied until later.

LESSON 13

BEVERAGES

A beverage is anything that we drink, either to quench thirst or for its refreshing and stimulating effects. Water is the best and most commonly used beverage. Other common ones for the table are tea, coffee, cocoa, chocolate, and the juices of fruits.

TEA

Source.—Tea is made from the leaves of a shrub grown extensively in Japan, China, India, and Ceylon. Different qualities of strength and flavor in tea are due chiefly to the age of the leaves when picked and to the method of curing them. The young and tender leaves and buds yield teas of the highest quality.

Fig. 10. Tea plant, showing parts to be plucked for the better grades of tea. (U. S. D. A. Bul.)

Kinds and Manufacture.—There are two kinds of tea, green and black, with many varieties or brands of each.

Black tea is made by first allowing the leaves to wilt rather slowly, after which they are rolled, allowed to ferment and turn black, and then dried in an oven. Examples of black tea are Pekoe, Oolong and English Breakfast.

Green tea is made in a similar way to black tea, except that the curing process is done more rapidly and the leaves are first wilted at a tempera-

ture high enough to kill the fermenting agents, thus preserving the green color. Hyson and Gunpowder are two common commercial varieties of green tea.

Composition.—The most important substances in tea are theine, a stimulant; tannin, a harmful astringent; and a small amount of volatile oils, which give flavor and aroma. Black tea is milder than green tea. The theine is what we desire to extract from the leaves, and just a few minutes' steeping in water that has been brought to the boiling point is sufficient to dissolve out nearly all of it. Boiling or too long steeping draws out much of the tannin, which is undesirable.

Fig. 11. A serviceable teakettle, with alcohol lamp.

Food Value.—Tea itself has no food value. It is used for its mild stimulating effect upon the nervous system and because it removes the sense of fatigue. Poor tea or tea taken in excess produces a hindering effect on digestion and, with many persons, causes irritation and sleeplessness. Children require no stimulants, and their health is best promoted without tea.

Adulterations.—Cheap grades of tea are likely to be adulterated with tea dust, etc., and injurious substances are sometimes used to imitate the color of green tea.

COFFEE

Source.—Coffee is made from the berries of a tropical evergreen grown principally in Brazil, Arabia, Java, Ceylon,

and East India. About three-fourths of the world's coffee comes from Brazil. Each berry has two seeds.

Kinds.—Coffee grown in Arabia (Mocha coffee) is of fine quality, and is a small, dark-yellow, round berry. Java and East India coffees are pale yellow before roasting. Ceylon and Brazilian coffees are a green gray. A combination of Mocha and Java makes an excellent coffee.

Adulteration.—Coffee is frequently adulterated with roasted chicory, acorns, and parsnip roots. Good coffee does not sink in cold water, and does not quickly discolor cold water.

Composition.—Coffee contains a stimulating substance called caffeine, which is the same thing as theine in tea. It also contains some essential oils and tannin. So much more of the injurious tannin in coffee is extracted by long boiling, and so little more of the good element, that coffee should not be allowed to boil longer than a few minutes.

Food Value.—Coffee itself has no food value. It stimulates the nerves, brain, and heart, and the tannin has a hindering effect on digestion. Because it is usually made stronger, it has a greater stimulating effect than tea. For most persons, good coffee taken moderately at the close of a meal has a beneficial effect. Children should avoid coffee, as well as tea; they need no stimulants.

Care of Coffee.—1. Buy good, freshly roasted coffee, unground, and grind it as it is needed.

2. Keep it in an air-tight jar.

3. Never let coffee stand in the coffeepot between meals.

4. Use a clean, enamel coffeepot, and scald out after using.

5. Do not use soap in washing out the coffeepot.

COCOA AND CHOCOLATE

Source.—Cocoa and chocolate are products from the seeds of the cacao plant, which is grown chiefly in the tropical countries of America.

Manufacture.—The cacao bean-pod is from 7 to 10 inches long and 3 or 4 inches in diameter. Each pod contains twenty to forty seeds. They are fermented in heaps on the ground for several days, to develop their flavor; then the beans are dried and roasted, the covering is removed, and they are sold as "cocoa nibs." Some of the fat is extracted from the cocoa nibs, and the rest of the bean is pulverized and mixed with sugar and a little starch. This is sold as cocoa.

Chocolate has not as much of the fat removed. Some is sweetened and flavored, and some is sold as bitter chocolate. The fat obtained from the cocoa bean is sold as cocoa butter, and is used for medicinal and other purposes.

Composition.—The cocoa bean contains nearly 50 per cent fat and 10 to 15 per cent starch, with a little protein. It contains a substance called theobromine, which is similar to caffeine, but is much milder.

Food Value.—The fat and protein in cocoa and chocolate combined with the milk used in the preparations make them both nutritious foods. Chocolate is richer in fat and is harder to digest than cocoa. Cocoa makes a nourishing drink for children and invalids. Both have a slightly stimulating effect on the body.

APPLICATION

1. Tea

3 tsp. tea 2 c. water

Method.—Put the tea into a scalded earthen or china teapot and pour the freshly boiled water over it. Moder-

ately hard water is best. Cover and allow to steep 3 to 5 minutes. Serve with sugar and cream if desired, or with sugar, a clove, and a thin slice of lemon. Avoid all second brews, which contain more of the harmful tannin. Tea should always be freshly made and should never be boiled.

For *iced tea*, make tea, strain, and set on ice 3 or 4 hours. Serve with broken ice and a slice of lemon in each glass.

2. Coffee (*a*)

½ c. ground coffee
2 eggshells (crumbled) or ½ egg white
½ c. cold water
3½ c. boiling water

Method.—Mix coffee, egg white or shells, and ¼ cup of cold water thoroughly. Add boiling water. Boil coffee 3 minutes and move coffeepot to back of the stove. Pour a little of the coffee into a cup to free spout from grounds; pour it back into the coffeepot and add ¼ cup cold water. Let it stand for 10 minutes where it will keep hot but not boil. Serve with sugar and cream, if preferred, which are put into the hot cup before the coffee is poured in.

Coffee (*b*)

½ c. ground coffee
2 eggshells (crumbled) or ½ egg
4 c. cold water

Method.—Mix coffee, egg, and cold water. Allow it to come to a boil and boil for 1 minute. Pour a little cold water into the spout to settle coffee. Allow it to stand in a warm place for 10 minutes. Strain and serve in usual way.

3. Filtered Coffee

½ c. coffee
4 c. boiling water

Method.—Put finely ground coffee into upper part or strainer in the top of a coffeepot, and pour the boiling water slowly upon it. Allow the water to filter slowly through, then pour it out, and let filter through again. The coffeepot must be kept hot while coffee is being made, but

filtered coffee must *never* be boiled. This produces a clear, bright coffee and requires about 5 minutes for making. Serve at once, or the bright flavor will be lost. (Makes 4 cups of coffee.)

4. Percolated Coffee

Method.—Use same proportion of coffee as for Filtered Coffee. Place the coffee in the strainer in the upper part of the pot and let the water boil up through the tube, percolating through the coffee into the lower part, where it is sent boiling to the tube again. The glass top renders it easy to see when the coffee is strong enough. The flame can be turned low so as to keep the coffee hot but not boiling.

5. After-Dinner Coffee

Method.—Allow 2 tablespoonfuls finely ground coffee to each large coffee cup of freshly boiled water. Filter according to directions given.

6. Chocolate

1 sq. Baker's chocolate
2 tbsp. sugar
Pinch of salt
1 qt. hot milk
2 tbsp. hot water

Method.—Put chocolate, sugar, salt, and 2 tablespoonfuls of hot water in a pan. Cook until smooth, stirring constantly, add gradually the hot milk. Boil for several minutes. Serve with whipped cream or a marshmallow on the top of each cup.

(*Basis for 2 girls, ¼ rule.*)

7. Cocoa

1 pt. scalded milk
1 pt. boiling water
2 tbsp. cocoa
2 to 4 tbsp. sugar

Method.—Mix cocoa and sugar in a saucepan, stir in the water gradually, and boil 5 minutes. Add the milk, and cook 5 minutes longer or until smooth.

NOTE.—If this is to stand, beat well to prevent the albuminous skin from forming.

8. Lemonade

1 lemon (juice)	½ c. sugar
1 pt. water	2 thin slices of lemon

Method.—Wash the lemon, cut thin slices from the center, and remove the seeds. Squeeze the juice into a bowl, add the sugar, water, and cracked ice. Serve very cold with a slice of lemon for each glass.

Note.—Variations of this lemonade may be made by adding fruit juices or mineral water.

LESSON 14

QUICK BREADS—THIN BATTERS

QUICK BREADS are mixtures of flour and liquid, together with some sugar, salt, shortening, and a leavening agent. They are so named to distinguish them from the yeast breads, which require a longer time in making.

Quick-bread mixtures are either batters or doughs, depending upon the amount of liquid used.

Batters are mixtures that are beaten. There are two kinds:—

1. *Pour batters*, which are in the proportion of 1 measure of liquid to 1 of flour.

2. *Drop batters*, which are in the proportion of 1 measure of liquid to 2 of flour.

Dough is a mixture that is kneaded. There are two kinds:—

1. *Soft dough*, in the proportion of 1 measure of liquid to 3 of flour.

2. *Stiff dough*, in the proportion of 1 measure of liquid to 4 or more of flour.

The proportions vary to some extent according to the flour used.

Materials for Quick Breads.—The liquids used are milk, water, or molasses. Eggs are regarded as so much liquid. The fats used are butter, lard, suet, or beef drippings. This fat is spoken of as shortening, as it makes the mixtures more tender. The flour used is wheat flour or meal (corn, rye, or graham).

Leavening Agents.—Flour mixtures when baked would be very hard and indigestible if no leavening agent were

used. Air, steam, and carbon dioxide gas are the agents used for this purpose.

Air is introduced into flour mixtures (1) by adding eggs and then beating the mixture, or (2) by beating the eggs first and adding to the mixture. Can you name a case where air was used to make a mixture light?

Steam.—The liquid in a heated mixture is converted into steam and is expanded many times. This puffs up the mixture. The heat of the oven hardens the mixture and holds the steam in. Mixtures without flour fall when cool, as steam changes back to water when cold.

Carbon dioxide gas is produced in mixtures to lighten them, by the addition of—

1. Soda and an acid (cream of tartar, sour milk, or molasses). Soda and cream of tartar make baking powder.
2. Yeast, as in bread making.

Directions for Mixing Quick Breads.—

1. Sift and mix the dry materials.
2. Add the wet materials to the dry.
3. Beat eggs separately and add to the mixture, and beat thoroughly.
4. Rub or cut shortening in cold; or melt and add to the mixture.
5. Use a large mixing spoon.
6. Mix quickly and put into the oven to bake quickly.

Baking.—Quick breads should be baked as soon as mixed, in order to hold all the leavening material (air, steam, and gas) in the mixture. This is especially necessary with thin batters, also those raised by air or those raised by soda and liquid acids (sour milk and molasses). The gas in the latter case is produced more readily in the presence of moisture.

Temperature of Oven.—Different mixtures require different temperatures, and most recipes designate the temperature of the oven. In order to ascertain the temperature, some simple tests similar to the following are used:—

1. A moderate oven turns a piece of white paper golden brown in 5 minutes.

2. A hot oven turns a piece of white paper dark brown in 5 minutes.

Pans.—Grease pans thoroughly. Use a small brush or a piece of paper for greasing.

The time for baking is divided into quarters, as follows:—

1. Mixture rises.
2. Mixture continues to rise, and browns slightly.
3. Mixture finishes rising and browns all over.
4. Mixture finishes baking and shrinks from the pan.

Time Guide for Baking Quick Breads (with gas).—

Pop-overs	30 min.
Biscuits (baking powder)	10 to 20 min.
Corn bread (thin)	15 to 20 min.
Corn bread (thick)	30 to 40 min.
Muffins (baking powder)	20 to 25 min.
Gingerbread	30 to 45 min.

APPLICATION

1. **Pop-overs** (thin batter)

1 c. flour	¼ tsp. salt
1 c. milk	2 eggs

Method.—Put the flour in a bowl, make a well in the center, and drop in the salt. Add the milk gradually, and stir well. When smooth add the unbeaten eggs and beat hard until light. Bake in hissing hot muffin pans in a hot oven 45 minutes. Serve hot. (Makes 8 pop-overs.)

(*Basis for 2 girls, ½ rule.*)

2. Sour Milk Griddle Cakes

2 c. flour
1 tsp. soda
1 egg
½ tsp. salt
2 c. sour milk

Method.—Mix and sift the dry ingredients; add the sour milk and egg well beaten. Bake by spoonfuls on a hot, greased griddle. (Beat the batter well before pouring a fresh batch of cakes on the griddle.) When puffed full of bubbles and cooked on the edges, turn and cook on the other side. Grease pan, and repeat. If large bubbles form at once on the top of the cakes, the griddle is too hot. If the top of the cake stiffens before the under side is cooked, the griddle is not hot enough.

(*Basis for 2 girls, ¼ rule.*)

3. Griddle Cakes (baking powder, sweet milk)

3 c. flour
1½ tbsp. baking powder
1 tsp. salt
¼ c. sugar
2 c. milk
1 egg
2 tbsp. melted butter

Method.—Mix and sift the dry ingredients; beat egg, add milk, and then add the wet mixture to the dry. Beat thoroughly and add the butter. Cook the same as Sour Milk Griddle Cakes. Begin cooking cakes at once or more baking powder will be required.

(*Basis for 2 girls, ¼ rule.*)

4. Bread Griddle Cakes

1¼ c. fine stale bread crumbs
1½ c. scalded milk
2 eggs
2 tbsp. butter
4 tsp. baking powder
½ c. flour
½ tsp. salt

Method.—Add the milk and butter to the crumbs, and soak until crumbs are soft; add eggs well beaten, then the flour, salt, and baking powder mixed and sifted. Cook the same as other griddle cakes.

(*Basis for 2 girls. ¼ rule.*)

5. Waffles

1 c. milk	¼ c. melted butter
2 eggs	2 sc. tsp. baking powder
Pinch of salt	Flour to make soft batter (about 1½ c.)

Method.—Beat flour and milk, add butter, and beat. Add the well-beaten yolks and beat again; then add baking powder and a little salt and beat very hard for a few minutes. Fold in the well-beaten whites lightly. Have iron very hot; bake, and serve at once.

6. Brown Sugar Syrup

FOR WAFFLES AND CAKES—

1 c. brown sugar	1 tbsp. butter
¼ c. water	½ tsp. vanilla

Method.—Boil the sugar and water 5 minutes, then add the butter and vanilla and serve hot or cold.

LESSON 15

QUICK BREADS—BAKING POWDER

Composition.—Baking powder is made up of substances that react and form carbon dioxide gas in the presence of heat and moisture. It contains one part of baking soda (saleratus) and two parts of an acid (cream of tartar, phosphate, or alum) with a little starch to keep it dry. Cream of tartar is an acid substance obtained from the argols or crystals formed on the inside of wine casks. Soda is an alkaline product made from common salt and contains a carbonate.

Experiments to show the action of soda and an acid:—

1. Mix ¼ tsp. of soda and ½ tsp. of cream of tartar. What happens?

2. Add ¼ cup of cold water to the mixture. What happens?

3. Add ¼ cup of boiling water to a similar mixture of soda and cream of tartar. Compare the results with Experiments 1 and 2.

Action of Baking Powder.—Carbon dioxide gas is produced rapidly by the action of baking powder in the presence of a liquid and heat. As the bubbles of gas are formed and expand they lift up the mixture and make it light. Baking must be accomplished while the bubbles are forming if best results are to be obtained. If too hot an oven is used, a crust is formed before all the gas is liberated and as a result the bread is heavy. Quick breads baked in too hot an oven often crack open on the top.

If too cool an oven is used the gas forms and passes off before enough heat is present to produce a crust.

Mixtures containing eggs do not require as hot an oven since albumin is coagulated at a moderate temperature.

Kinds of Baking Powder.—Baking powders are classed according to the acid used; as (1) cream of tartar, (2) tartaric acid, (3) phosphate, and (4) alum, baking powders.

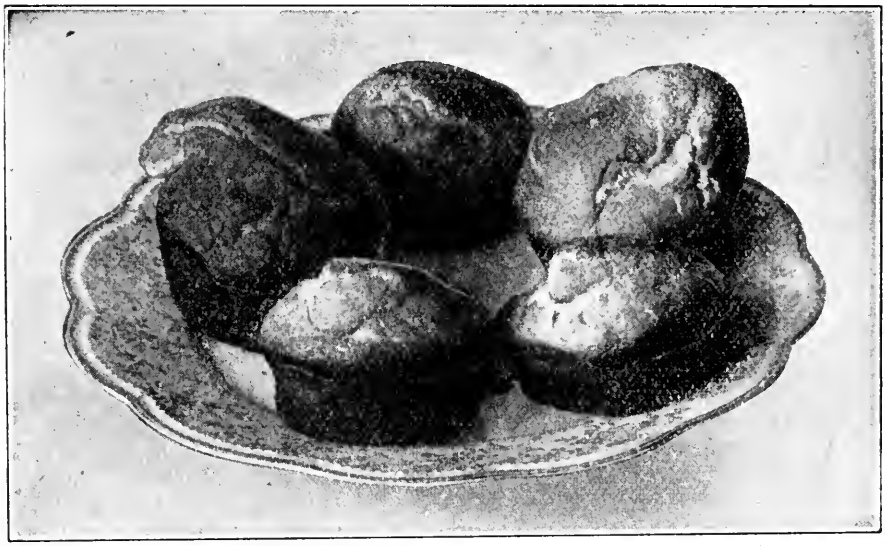

Fig. 12. Muffins.

The first three named are regarded as more healthful than alum powders, since they leave in the bread no harmful residues which are the objection to baking powders containing alum.

The proportion of baking powder to use with flour is 2 teaspoonfuls of baking powder to 1 cup of flour. If eggs are used in a mixture, use less baking powder. **Why?**

APPLICATION

1. Muffins (plain egg)

2 c. flour
3 tsp. baking powder
4 tbsp. sugar
½ tsp. salt
1 egg
4 tbsp. melted butter
1 c. milk

Method.—Mix and sift the dry ingredients, separate the egg, beat the yolk slightly and the white to a stiff froth. Add the milk, beaten yolk, and melted butter to the dry ingredients. Fold in the stiffly-beaten whites. Bake in buttered muffin pans 25 minutes.

(*Basis for 2 girls, ¼ rule.*)

2. Blueberry Muffins

Add to the preceding plain-egg recipe:—

1 c. blueberries
⅓ c. sugar

Method.—Mix the same as the plain-egg muffins. For blueberry muffins use a little less milk.

(*Basis for 2 girls, ¼ rule.*)

3. Rice Muffins

2¼ c. flour
¾ c. hot cooked rice
5 tsp. baking powder
3 tbsp. sugar
1 c. milk
1 egg
2 tbsp. melted butter
½ tsp. salt

Method.—Mix and sift the dry ingredients; add ½ the milk and the well-beaten egg. Mix the remainder of the milk with the rice and add to the first mixture, beating thoroughly. Then add the melted butter and bake in buttered muffin tins.

(*Basis for 2 girls, ¼ rule.*)

4. Invalid Muffins

1 c. flour
1 tsp. baking powder
½ tsp. salt
½ c. milk
2 eggs (whites)
2 tbsp. melted butter

Method.—Mix and sift the dry ingredients, add the milk gradually, the eggs well beaten, and lastly the melted butter. Bake in a moderate oven in buttered gem pans. After baking, let stand in the oven, with door open, until the crust is dry and crisp. Serve hot or cold.

5. Date Muffins

⅓ c. butter	¾ c. milk
¼ c. sugar	2 c. flour
¼ tsp. salt	¼ lb. dates
1 egg	4 tsp. baking powder

Method.—Cream the butter, add the sugar gradually and the dates chopped fine. Cream all together, add the beaten egg, then half of the milk, and half of the flour. Beat thoroughly. Add the remainder of the milk and the flour, beating hard. Sift the baking powder over the top and carefully fold it into the mixture. Bake in hot greased muffin pans for 20 minutes.

6. Oatmeal Muffins

(Conservation Recipe)

1½ c. milk	2 c. rolled oats
1 tbsp. syrup	1 c. wheat flour
1 egg	1 tbsp. oil
¾ tsp. salt	4 tsp. baking powder

Method.—Pour the hot milk over the rolled oats, let stand half an hour. Add the well-beaten egg, syrup, and oil. Then add the dry materials sifted together. Beat hard, turn into well-greased muffin pans and bake in a moderate oven for ½ hour.

7. Potato Muffins

(Conservation Recipe)

1 c. mashed potatoes	1 c. milk
1 c. cornmeal	2 tbsp. oil
½ tsp. salt	1 egg
4 tsp. baking powder	1 tbsp. sugar

Method.—Mix the dry material together. Beat the egg well, add the milk and add the wet mixture to the dry. Then add the oil and beat hard. Turn into well-greased muffin pans and bake in a moderate oven twenty-five to thirty minutes.

LESSON 16

QUICK BREADS—CORN, THICK BATTERS

REVIEW leavening agents (Lesson 14).

CORN

Source.—Corn is a native of America, and ranks first in importance of all crops raised in this country.

Kinds.—There are three kinds of corn of interest in cookery: (1) dent (field) corn, (2) sweet corn, and (3) pop corn.

Dent corn is large and coarse and is used for making cornmeal, cornstarch, corn sirup, and hominy. Name other uses.

Sweet corn is finer grained and contains sugar. It is used as a table vegetable and is served both on the ear and off the ear.

The Golden Bantam variety of sweet corn has very yellow ears, and is sweeter and more tender than any other variety.

Pop corn has small, sharp, hard kernels. This corn when exposed to the heat bursts open, and the inside of the kernel, which is composed mainly of starch, swells into a mass of fluffy white. It is served hot and fresh with salt and butter, or with a sirup and made in the form of balls. It may also be used as a garnish around red apples filled with apple salad.

Composition.—Corn is similar in structure and composition to wheat, with the exception of the protein. Corn contains more fat than wheat and the protein has not the tenacious, elastic properties that gluten of wheat has. It cannot be baked into a light, porous loaf. Cornmeal is very heavy when used alone, and most recipes call for

the addition of white flour, as the gluten in the flour helps to hold the air in the mixture. Corn contains a small quantity of cellulose compared with other grains.

COMPOSITION OF CORN FOODS

	Protein	Fat	Carbohydrates	Minerals	Water
Corn (whole)	10.5	5.4	71.7	1.5	10.9
Hulled corn	2.3	.9	22.2	.5	74.1
Hominy	8.6	.6	79.6	.3	10.9
Pop corn	10.7	5.0	78.7	1.3	4.3
Cornmeal	8.9	2.2	75.1	.9	12.9

CORN PRODUCTS

Hominy is the corn kernel with the skin removed and may be either whole or cracked into coarse pieces. The skin was formerly removed by soaking in strong lye, but this is now done by machinery.

Cornmeal is made in two grades. A rather coarse meal is made by grinding the whole kernel and removing only the coarsest bran. This meal is darker in color than the fine grade and does not keep well in summer, owing to the large amount of fat in the germ. A fancy grade is made by removing both the skin and the germ from the kernel and grinding the remainder quite fine.

Cornstarch is the pure starch of the corn grain, made by washing the flour. Potatoes are now coming to be used more for this purpose.

Glucose, or corn sirup, is made by boiling corn starch with dilute acid. It is about three-fifths as sweet as cane sugar, and is wholesome for table use and for candies.

Corn Oil, a more recent product, is the pure vegetable oil from the heart of the corn. It is purified and is an excellent fat substitute for animal fat in all kinds of cooking.

Food Value of Corn.—Corn, being rich in fat and starch, furnishes much heat and energy to the body. It is deficient in protein and salts, which necessitates its being used with foods containing tissue-building materials.

Cornmeal cooked in the form of mush, hoe-cake, johnny-cake, and brown bread is a very popular dish in the South and in some European countries. Such food is easily masticated and digested, may be quickly prepared, is cheap, nutritious, and may well be used more extensively.

APPLICATION

1. Cornmeal Muffins

½ c. cornmeal	1 tbsp. melted butter
1 c. flour	½ tsp. salt
3 tsp. baking powder	¾ c. milk
1 tbsp. sugar	1 egg

Method.—Mix and sift dry ingredients, add the milk gradually, then the egg well beaten, and the melted butter. Bake in a hot oven in buttered gem pans for 25 minutes.

(*Basis for 2 girls, ½ rule.*)

2. Graham Muffins

1 c. graham flour	1 c. milk
¼ c. flour	1 egg
¼ c. sugar	1 tbsp. melted butter
1 tsp. salt	4 tsp. baking powder

Method.—Same as for Cornmeal Muffins.

3. Corn Bread

1 c. cornmeal	½ tsp. salt
1 c. flour	1 c. milk
¼ c. sugar	2 eggs
4 tsp. baking powder	4 tbsp. melted butter

Method.—Mix and sift the dry ingredients, add the milk, then the well-beaten egg, and lastly the melted butter. Beat thoroughly. Bake for 25 minutes in a shallow buttered pan in a moderate oven.

(*Basis for 2 girls, ½ rule.*)

4. Muffins (without eggs)

1 c. buttermilk
½ tsp. soda
1 tbsp. sour cream
2 c. flour

Method.—Mix and sift the dry ingredients together. Then gradually add the wet mixture to the dry. Beat hard and bake in hot muffin pans in a moderate oven for 20 minutes.

5. Southern Spoon Bread

2 c. milk
1 c. cornmeal
½ tsp. salt
4 eggs

Method.—Scald the milk, and slowly stir in the cornmeal, add the salt and let boil 2 or 3 minutes. Remove from the fire, add the beaten egg yolks, beat well, then carefully fold in the stiffly beaten whites of eggs. Pour into a buttered baking dish and bake in a moderate oven ½ hour. Serve hot from the baking dish at the table with a large spoon.

6. Cereal Muffins
(Conservation Recipe)

1 c. barley flour
1 c. cornmeal
1 c. wheat flour
4 tsp. baking powder
1 tsp. salt
1¾ c. milk
1 egg
1 tbsp. corn oil
1 tbsp. corn syrup or molasses

Method.—Sift the dry ingredients together, add the wet, beat hard and bake in a moderate oven ½ hour in well-greased muffin pans.

LESSON 17

QUICK BREADS—SODA

QUICK breads are often made light by the use of soda with material containing acid, like sour milk or molasses. The acid and soda form carbon dioxide gas throughout the mixture, which causes it to rise. The acid material being liquid, the action is quicker than when baking powder is used, and mixtures raised in this way must be prepared quickly and put in a hot oven at once.

Experiments to produce carbon dioxide gas with soda and a liquid acid:—

1. Put ¼ tsp. of soda in ½ c. of sour milk.
2. Heat the mixture. Watch it.

The action in the case of soda gives the same results as baking powder, and makes mixtures light.

Proportion of soda with acid material:—

To 1 c. thick sour milk use ½ tsp. of soda.

To 1 c. of molasses use 1 tsp. of soda.

APPLICATION

1. Soft Molasses Gingerbread

1 c. molasses	2 hp. c. flour
¼ c. melted butter	2 tsp. ginger
1½ tsp. soda	½ tsp. salt
1 c. sour milk	Few drops of vanilla

Method.—Put the soda into the sour milk, then add to the molasses. Sift dry materials together and add the wet to the dry; beat vigorously. Bake 25 minutes in buttered muffin pans, having pans ⅔ filled with the mixture.

(*Basis for 2 girls, ¼ rule.*)

NOTE.—A few floured raisins might be added to this recipe.

2. Hot Water Gingerbread

1 c. molasses	1½ tsp. ginger
½ c. boiling water	1 tsp. soda
2¼ c. flour	½ tsp. salt

4 tbsp. melted butter

Method.—Add the boiling water to the molasses. Mix and sift the dry ingredients and add the wet mixture to the dry; then add the melted butter; beat hard. Pour in buttered pan or muffin tins, and bake in a moderate oven for 25 minutes.

¼ cup of floured raisins may be added to make a variety.

3. Brown Nut Bread

2 c. graham flour	½ c. molasses
1 c. white flour	¼ c. sugar
2 c. sour milk	½ c. raisins
2 tsp. soda	½ c. nuts

1 tsp. salt

Method.—Mix the dry materials together; cut and flour the raisins and the nuts or add them to the dry materials. Add the sour milk to the molasses, and then add the wet materials to the dry. Grease one-pound baking powder cans thoroughly and pour in the mixture, cover, and let stand an hour; then bake 45 minutes in a hot oven. This makes 3 loaves. Fill cans only ⅔ full, for the mixture rises before baking.

LESSON 18

QUICK BREADS—FLOUR, SOFT DOUGH

FLOUR

Flour is made from cereals—wheat, oats, barley, rye, corn, buckwheat and rice.

Kinds of Wheat Flour.—(1) Graham flour, (2) whole-wheat flour, (3) bread flour, (4) pastry flour. Turn to lesson 6, on wheat. Notice the structure of wheat, also note the difference between spring and winter wheats.

Graham flour is made by grinding the entire grain of spring wheat, including the outer bran coverings.

Whole-wheat flour is made by grinding the whole grains of spring wheat, with the exception of the two outer and coarser bran coats.

Bread flour is made by grinding the remainder of the grain of spring wheat after the bran coats and much of the germ are removed.

Pastry flour is made from the starchy part of the grain of winter wheat. The outer bran coats and the germ are not used.

Manufacture of Flour.—Wheat is taken into the mill and carefully washed to remove all dust. It is soaked to soften it some, then passed between either millstones or rollers, which grind the grain. There are two chief methods of breaking or grinding the grain, but that used in the best mills for high-grade flour is called roller milling. The wheat may pass through as many as eight different sets of rollers, each crushing or grinding finer than the preceding. After each grinding, the fine flour is sifted, or bolted, through silk cloth of different degrees of fineness. Many by-products:

as, bran, middlings, shorts, etc., are produced. Graham and whole-wheat flour are usually ground between millstones, in one operation. The flour is finally packed into barrels and sacks, ready for the market. A barrel of flour weighs 196 pounds, and sacks may be had containing 24½, 49, and 98 pounds.

Grades of Flour.—There are many grades of flour made in every mill. The grade depends upon the quality of the wheat and upon the sorting in the milling process. Inferior flour is sometimes sold as best flour, and we pay the price of the best. We must be able to detect poor flour and to demand a grade of flour worth the price we pay.

Composition of a bread flour is as follows:—

Protein	Carbohydrates	Fat	Mineral matter	Water
11.3%	74.6%	1.1%	.5%	12.5%

How to Tell Good Flour.—

1. In color it is white with a yellowish tinge.
2. It has a gritty feeling, not being too smooth and powdery.
3. It absorbs water readily.
4. It falls loosely apart after being squeezed in the hand, indicating that it does not contain too much moisture.
5. Good bread flour makes an elastic dough.

Experiments to determine the presence of starch and gluten:—

1. Test flour with iodine for starch.
2. Make a cup of flour into a stiff dough with a little cold water. Knead in a strainer set in a bowl of water for a few minutes. What washes away? What is the nature of the substance that is left?
3. Compare bread flour and pastry flour.

APPLICATION

Demonstrate Baking Powder Biscuit:—(*a*) Method of cutting in shortening. (*b*) Method of handling dough on a board.

1. Baking Powder Biscuit

2 c. flour
2 tbsp. shortening
4 tsp. baking powder
1 tsp. salt
¾ c. milk

Method.—Mix and sift the flour, baking powder, and salt. Cut in the shortening, using two knives, or rub in with the

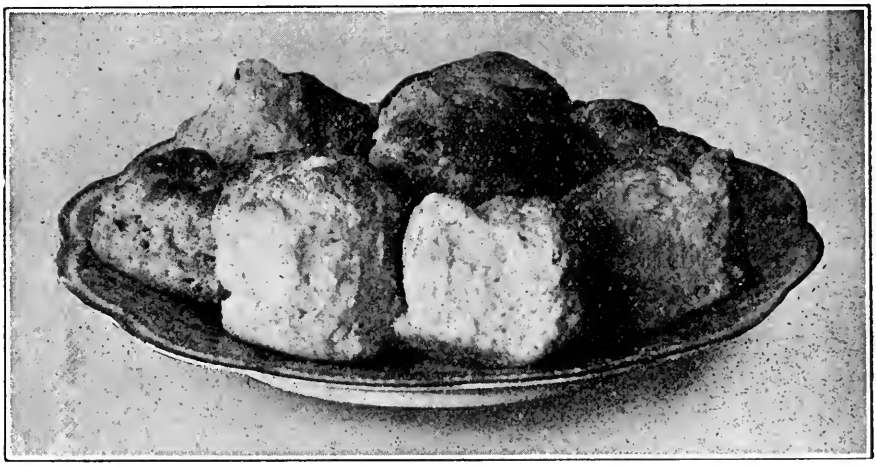

Fig. 13. Baking powder biscuits.

tips of the fingers. Add the milk gradually, mixing with a knife, to make a soft dough. Transfer to a well-floured board, and pat or roll out to one inch thickness. Handle as lightly and quickly as possible. Cut with a biscuit cutter, first dipped in flour. Place close together on a greased pan, and bake in a hot oven 10 to 15 minutes.

(*Basis for 2 girls, ½ rule.*)

2. Emergency Biscuit

2 c. flour
⅔ c. milk
4 tbsp. butter
4 tsp. baking powder
½ tsp. salt

Method.—Mix and sift dry ingredients; chop in butter with knives; then add the milk, and do not stir more than necessary. Bake in buttered gem pans.

(*Basis for 2 girls, ¼ rule, with ¼ c. milk.*)

3. Nut Bread

4 c. flour
1 tsp. salt
4 hp. tsp. baking powder
1 c. chopped nuts
2 c. milk
½ c. sugar
1 egg

Method.—Sift dry ingredients and add nuts. Beat the egg, add the milk, and stir wet mixture into dry. Put in well-greased bread tins. Let stand about 20 minutes to rise. Bake ½ hour in a moderate oven. This makes 2 loaves.

4. Fruit Roll

Baking Powder Biscuit Rule
½ c. chopped raisins and nuts

Method.—Prepare the biscuit dough and pat or roll out on a slightly floured board to the thickness of ½ inch. Sprinkle with finely cut raisins and nuts and a little sugar. Begin at one end and roll up. Cut into pieces one inch thick and bake on pans in a hot oven about 20 minutes. Serve hot for luncheon or tea.

5. Barley Biscuit

(Conservation Recipe)

3 c. barley flour
4 tbsp. fat
6 tbsp. baking powder
1 tsp. salt
1 c. milk

Method.—Same as for any baking powder biscuit.

LESSON 19

VARIETIES OF BAKING POWDER BISCUIT DOUGH

BAKING powder biscuit dough is made richer and sweeter when used for desserts—shortcakes and dumplings—but the method of preparation is very much the same as for biscuits.

APPLICATION

1. Shortcake, Peach

2 c. flour
4 tbsp. shortening (butter or lard)
4 tsp. baking powder
¼ tsp. salt
¾ c. milk
1 tsp. sugar

Method.—Mix and sift the dry ingredients, cut in the shortening as for baking powder biscuit. Add enough milk

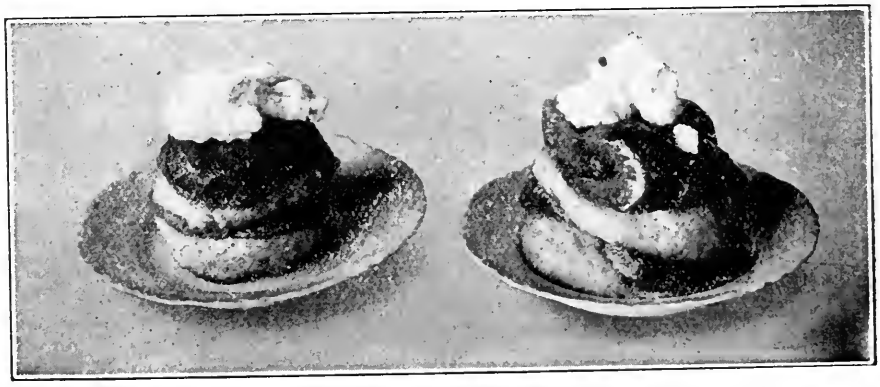

Fig. 14. Individual peach shortcakes.

gradually until the mass adheres together. Turn out on a slightly floured board and pat out to ⅓ inch in thickness. Cut in size to fit tins and put one piece on top of the other, with butter between. (Individual shortcakes may be made by cutting with a cutter and placing one piece on top of the

other.) Bake in a hot oven for 20 minutes; then split open ready for fruit.

To prepare peaches, peel them, cut in small slices, and sprinkle with sugar. Have the fruit warm, place some on the lower half, put other half of cake on top, and put fruit over the whole. Serve with cream or whipped cream.

(*Basis for 2 girls, ¼ rule.*)

2. Berry Shortcake

Method.—Make shortcake same as for peach shortcake. Sweeten berries to taste, and warm. Crush slightly and put between and on top of the shortcake.

LESSON 20

VARIETIES OF BAKING POWDER BISCUIT DOUGH (Continued)

REVIEW batters and doughs. Review baking powder.

APPLICATION

1. Apple Dumplings

1 c. flour
2 tsp. baking powder
¼ tsp. salt
2 tbsp. shortening
⅓ c. water or milk
4 apples
½ c. sugar

Method.—Mix and sift flour, baking powder, and salt. Cut in the shortening with knives, add the liquid, mixing to a soft dough. Roll on a well-floured board to ¼ inch thickness. Wipe, pare, and cut apples in halves. Cut dough in 4- or 5-inch squares. Place half an apple in center of square, and sprinkle with sugar and cinnamon. Moisten edge of dough; bring the four corners together around the apple. Pierce with a fork to allow steam to escape. Bake on a greased tin in a moderate oven until soft,—about 25 minutes. Serve warm with cream or any pudding sauce.

(*Basis for 2 girls, ¼ rule.*)

2. Dutch Apple Cake

2 c. flour
½ tsp. salt
3 tsp. baking powder
¼ c. butter
1 egg
⅔ c. milk
2 sour apples
2 tbsp. sugar
¼ tsp. cinnamon

Method.—Mix and sift the dry ingredients except sugar and cinnamon, cut or rub in the butter, add the milk and beaten egg. Spread ½ inch thick on a shallow pan.

Pare and cut the apples in sections lengthwise and set in rows on the dough with the sharp edges pressed lightly into the dough. Sprinkle the top with sugar and cinnamon. Bake in a hot oven 25 or 30 minutes. Serve hot with lemon or hard sauce.

3. Vanilla Sauce

½ sc. c. of sugar
1 tbsp. corn starch or 2 of flour
1 c. boiling water
1 tsp. vanilla
1 tsp. butter

Method.—Mix sugar and corn starch in a sauce pan. Pour on the boiling water, stirring rapidly. Boil and stir until clear, add butter and vanilla. Serve hot or cold.

4. Lemon Sauce

½ c. sugar
1 c. boiling water
1 tbsp. corn starch
2 tbsp. butter
1½ tbsp. lemon juice
Few gratings nutmeg
Pinch of salt

Method.—Mix the sugar and corn starch, add the water gradually, stir constantly. Boil 5 minutes, remove from fire, add the butter, lemon juice, and nutmeg. Serve hot.

(*Housekeepers make full rule.*)

5. Hard Sauce

⅓ c. butter
1 c. powdered sugar
¼ tsp. lemon juice
⅔ tsp. vanilla

Method.—Cream the butter, add the sugar gradually and the flavoring. Set away to get cold. Serve cold.

LESSON 21

STEAMED MIXTURES

General Directions for Steaming Mixtures.—1. Use a tin mold or can with a tight-fitting cover.

2. Grease the inside of the mold and the cover thoroughly.

3. Fill cans only ⅔ full.

4. Tie covers on securely.

5. Set mold on a rack in a kettle containing enough boiling water to come half way up on the mold. Why is a rack necessary? Or set mold in a steamer over boiling water.

6. Cover the kettle or steamer tightly.

7. Keep water boiling all the time, and add more water as needed.

8. Set the mold in the oven for a few minutes to dry off after steaming is done.

Time for steaming mixtures:

The time for steaming depends on the nature of the mixture to be steamed and the kind of a mold used.

Mixtures which contain much fruit and suet require longer time for steaming than plain mixtures. Tin conducts the heat more readily than granite or porcelain and mixtures require less time for steaming in tin molds than in heavy molds.

STEAMED MIXTURES

Molds	*Mixtures*	*Time for Steaming*
Individual, tin	Plain	½-1 hour
Pound, tin	Plain	2-3 hours
Pound, tin	Fruit	3-4 hours
Larger than 1 pound	Plain	3-4 hours
Larger than 1 pound	Fruit	4-5 hours

APPLICATION

1. Steamed Boston Brown Bread

1 c. rye flour	¾ tbsp. soda
1 c. cornmeal	1 tsp. salt
1 c. whole wheat	¾ c. molasses
2 c. sour milk or	1¾ c. water

Method.—Mix and sift dry ingredients; add molasses and liquid; stir until well mixed; turn into a well-buttered mold and steam 3½ hours. Butter the cover before placing it on the mold. Fill mold ⅔ full. Baking-powder tins may be used for molds. Steam according to directions.

(*Basis for 2 girls, ⅛ rule.*)

2. Quick Individual Puddings

1 c. flour	¼ tsp. salt
2 tsp. baking powder	1 tsp. sugar
½ c. milk	Fruit

Method.—Mix and sift the dry ingredients, and add the milk gradually to the dry materials. Grease each individual mold or cup thoroughly. Put ⅛ c. of fruit in the bottom of each cup and add batter to fill the cup. Set cup in a steamer over a kettle of boiling water. Cover the steamer tightly and steam for 30 minutes. Turn the pudding out of the cup and serve hot with cream and sugar. Any cooked fruit, jam, jelly, or fresh berries may be used.

LESSON 22

YEAST—BREAD

YEAST

YEAST is a mass of very tiny plants, each plant consisting of a single cell.

Source.—Wild yeast is present in the air and on the skins of grapes. Desirable varieties are cultivated.

Growth.—Yeast plants grow by budding, each bud breaks away from the parent cell and in turn forms new buds. Under favorable conditions the growth is so rapid that often many buds are formed on one cell at one time, and these in turn are budded before they separate from the parent cell. Under certain conditions yeast forms spores, which grow when they lodge in a favorable place.

Conditions favorable to growth are: (1) Warmth (77° to 95° F. is best). (2) Moisture. (3) Food (starch and sugar).

Freezing (32° F.) checks the growth. Hot water, or a temperature above 130° F., kills yeast.

Forms.—(1) Liquid, (2) dry, (3) compressed.

Liquid yeast is not as much used now as in earlier times. It is made from potatoes, hops, sugar, and water. A few yeast plants are added, which feed upon the mixture and multiply very rapidly until the mixture is alive with them. A small amount of this mixture added to dough produces the necessary leaven.

Dry yeast is a market form of yeast. The yeast plants are skimmed from vats of wort, a dilute sugar solution, and are washed, dried, and mixed with starch to keep dry. Then the mass is pressed into sheets which are cut into small squares and put in packages for the market. Dry

yeast will keep for a long time and will start to grow only when proper food, heat, and moisture are present again. This form of yeast is convenient for any one living a long distance from market.

Compressed yeast is prepared in the same manner as dry yeast, with the exception that not enough starch is used to keep the yeast dry. The life of the yeast in this case is not entirely suspended, and so compressed yeast cakes must be strictly fresh. If dark spots appear, it means that some of the little yeast plants have died, and the yeast cake will not do its work as well.

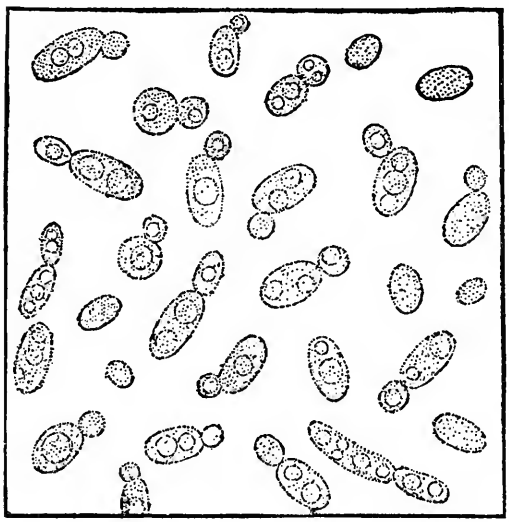

Fig. 15. Yeast plants (greatly enlarged). (U. S. D. A. Bul.)

Compressed yeast is wrapped in tinfoil to keep it moist and free from dust.

Action of Yeast.—When the yeast plant is put into the bread mixture it feeds upon the starch (which it first changes to sugar), and as it feeds, alcohol and carbon dioxide gas are formed. This change of the sugar is called fermentation. The substance causing the change is a *ferment.* In this case the yeast is a ferment. If fermentation continues too long, the mixture becomes sour. Dough sours when allowed to rise too long or at too high a temperature. When the dough is light enough, the bread is baked. Baking kills the yeast plants quickly, and causes the alcohol to pass out of the bread as vapor.

Experiments to show effect of temperature on yeast:—

1. Mix a yeast cake with ½ c. lukewarm water and 2 tsp. of sugar. How can you tell when water is lukewarm?

2. Put a third of the above mixture in a glass. Keep at a freezing temperature for an hour.

3. Put a third of the mixture in a glass and keep at the boiling point for an hour.

4. Put one third of the mixture in a glass and keep at a lukewarm temperature for an hour.

5. Set No. 2 in a warm place for an hour. Notice the change. Examine each one at the end of the hour and write conclusions. Why, in order to have the best results in bread making, should an even temperature be maintained while the dough is "rising?"

BREAD

Bread is one of man's earliest and most-used foods.

Ingredients necessary for white bread are: Wheat flour, liquid (water or milk,) and yeast. Sugar, shortening, and salt are used to flavor it.

Methods of Making Bread.—There are many ways of making bread, but all come under either of two main heads: (1) slow process or (2) quick process.

In the slow process, mix the ingredients into a batter or a sponge and set to rise until it is full of air bubbles, usually over night. Then add enough flour to make a stiff dough. Knead on a floured board until smooth and elastic. Let rise again until double its bulk. Shape into loaves on the board; let stand in greased tins until double their size. Bake in a moderate oven 40 or 45 minutes.

In the quick process, use more yeast. Mix ingredients into a sponge, and beat the sponge hard until it is full of air bubbles. This beating takes the place of one rising. Add enough flour to make stiff enough to knead; turn on

a floured board and knead as in slow process. Let it rise once to double its bulk, shape into loaves, double bulk again, and bake. This process takes 5 hours.

Setting the Sponge.—1. Put yeast to soak in a little lukewarm water. This dissolves the starch with the yeast and frees the yeast plants so that they can act more quickly.

2. Use half milk and water or all water. Half and half makes a richer loaf. All-milk bread dries out rapidly.

3. Scald the milk in the upper part of a double boiler.

4. Put shortening (lard or butter), sugar, and salt in a large, earthen bowl.

5. Pour the scalded milk into the bowl and stir all until the sugar and butter are dissolved.

6. Add the water to the ingredients in the bowl.

7. When all is lukewarm, add the dissolved yeast mixture. Stir thoroughly.

8. Add as much flour as liquid, slowly, and beat continually until smooth.

9. Add enough flour to make a drop batter. Beat this until full of bubbles. This drop batter in bread is called a "*sponge.*"

Making the Dough.—10. Add enough more flour to make the batter stiff enough to handle on a board.

11. Take mixture upon a board, leaving bowl perfectly clean.

12. Knead until it is smooth all through and springs back into place when pressed with the finger. Well-kneaded dough does not stick to the hands or board and can be kneaded without using flour on the board.

13. Set in an earthen bowl in a warm place, and cover with a dry cloth. Wet the top of the dough slightly to keep it from getting so dry that it can not rise.

First Rising.—14. When the dough has doubled its bulk, remove from the bowl and knead just enough to shape into loaves. Cut in the right size for loaves.

15. Prepare the pans by greasing thoroughly on bottom and sides. Be sure corners are well greased.

16. Shape the loaves well; make them the length of the pans and the same width.

17. Set the pans with bread in a warm place to rise and double bulk again.

Baking Bread.—When bread is nearly ready for the oven, test the oven, which should be hot enough to turn

Fig. 16. Bread and rolls, with utensils for making.

a piece of white paper dark brown in 6 minutes. Place pans on lower part of the oven and as near the center as possible.

Time.—Small loaves require about 35 minutes; larger loaves (about 4 inches thick), 50 or 60 minutes.

Divide time into quarters as follows:—

1st quarter, bread should rise and begin to brown.

2nd quarter, bread continues to rise and brown.

3rd quarter, it finishes browning and rising.

4th quarter, baking is finished and the loaf draws away slightly from the sides of the pan.

Turn the loaves so that they will brown evenly.

Tests when Done.—Bread draws away from the sides of the pans when done, and sounds hollow when tapped with the finger.

Care after Baking.—Remove loaves from pans, and turn on the side. If crisp crust is desired, let stand uncovered so the air can circulate around the loaf. If tender crust is desired, rub well with butter or milk.

Good bread has a fine even grain, with no large holes in it. It has an even, golden brown crust.

Uses for Stale Bread.—Stale bread may be used for crumbs, for toast (buttered and French), and for scallop dishes. Save and use all left-over pieces of bread. The large pieces are good for toast. Dry the smaller pieces or remnants of bread in a pan in the warming oven until they are crisp, but not brown. Crush the dry pieces with a rolling pin, and sift through a strainer. Put in a glass jar and keep covered until ready for use for croquettes, scalloped dishes or crumbing. Stale bread not dried may be used in puddings and griddle cakes. To freshen stale bread, put in a steamer over a kettle of boiling water, and steam 10 or 15 minutes until the bread is light and fresh.

Suggestions on the method of conducting bread lessons in 2½ to 3 hours

Each girl makes one loaf and works alone.

Preliminary Preparations.—Have double boiler ready, flour measured, and the required amount of yeast at each desk, also pitchers filled with cold water when lesson begins. Scald the milk for the entire class.

Class Management.—Mix the soft batter in the double boilers over lukewarm water. (Allow about 15 minutes.)

Beat the batter and add the rest of the flour. (Allow 10 minutes.)

Demonstrate the kneading. (Allow 5 minutes.)

Class knead the dough (Allow about 15 minutes.)
First rising—in double boiler. (Allow ½ hour.)
Wash dishes and grease tins while bread is rising.
Demonstrate the shaping of the loaves. (About 5 minutes.)
Class shape loaves and grease tops. (Allow about 10 minutes.)
Second rising takes ½ hour. Baking ½ hour.
General Suggestions.—Use double period for bread lesson.
Aim to have uniform work. One girl can delay the whole class.
Increase the standard proportion of yeast to hurry the lesson.
Hurry the measuring as much as possible.
Hurry the first rising by the use of double boilers.
Hurry the second rising by placing the loaves in the gas range slightly warmed; both the oven and broiling oven may be used.
Guard against over-heating of dough.
Small loaves require only ½ hour for baking.

APPLICATION

1 Slow-Process Bread

1 c. scalded milk
1 c. cold water
1 tbsp. sugar
About 6 or 6½ c. flour
1 tbsp. lard
1 tsp. salt
¼ cake compressed yeast
¼ c. lukewarm water

Method.—Soak the yeast in lukewarm water. Scald the milk and pour over the salt, sugar, and lard in a bowl. When dissolved, add the cold water. When lukewarm, add the dissolved yeast and enough flour to make a drop batter. Beat hard until smooth. This sponge must stand several hours or over night to rise until very light. Proceed as for kneading and baking. (Makes 2 loaves.)

2 Quick-Process Bread

1 c. scalded milk
1 c. cold water
1 tbsp. sugar
About 6 or 6½ c. flour
1 tbsp. butter or lard
1 tsp. salt
1 cake compressed yeast
¼ c. lukewarm water

(*Basis for* 1 *girl,* ¼ *rule, with double the amount of yeast for* 2½*-hour method.*)

Method.—Soak yeast in lukewarm water. Scald the milk and pour over the salt, sugar, and butter in a bowl. Then add the cold water, dissolved yeast, and flour to make a batter. Beat this batter until it is full of bubbles; then add enough more flour to knead on a board. Take upon a

floured board and proceed as directed for kneading. This method requires only 5 hours and two risings, one being in loaf. The thorough beating of the sponge takes the place of one rising. (Makes 2 loaves.)

3 Whole-wheat Bread

1 cake compressed yeast
¼ c. lukewarm water
1 sc. qt. whole-wheat flour
2 tsp. salt
½ c. sugar
1 pt. warm milk

Method.—Soak yeast cake in the warm water. Sift the flour, salt, and sugar; add the warm milk; beat the batter well until smooth; then add the yeast, and beat hard. Gradually add the sifted flour until the dough is stiff enough to be handled on a board. Handle lightly, place in a greased bowl, cover with a clean cloth, and let stand in a warm place. When double its bulk, shape into two small loaves, and let rise a few minutes. Brush with soft butter, and bake in a moderate oven for 45 minutes.

For *nut loaves*, add 1½ cups chopped pecans or walnuts with the flour.

One cup of chopped floured raisins may be added before the last rising.

4 Graham Bread

1 c. hot water
1½ c. hot milk
⅓ c. molasses
1½ tsp. salt
¼ c. warm water
¼ cake yeast
3 c. Graham flour
3 c. white flour

Method.—Add the hot liquid to the salt and molasses in a bowl, let cool, and when lukewarm, add yeast dissolved in the lukewarm water. Sift the Graham flour and use only the sifted part. Mix with the white flour and gradually add to the yeast mixture. Beat well, cover and let double its bulk. Beat down again, put into greased pans and let nearly double bulk again before baking.

5. Yeast Cornmeal Bread

(Conservation Recipe)

1¾ c. liquid (milk or water)	1½ cake compressed yeast softened in ¼ c. of liquid
2 tbsp. sugar	1 c. cornmeal
1 tbsp. fat	2 c. flour
2 tsp. salt	

This amount makes one loaf of bread.

Method.—Add sugar, fat and salt to liquid and bring to boiling point. Add the cornmeal slowly, stirring constantly. Bring to the boiling point. Remove from the fire and cool. These proportions of cornmeal and water result in so thick a mixture that to add the given amounts of flour looks impossible. It can be done, however. Add compressed yeast softened in 1 cup of water. Add flour and knead. Let rise till about double its bulk, knead again and put into pans. When light, bake in a moderate oven for at least an hour. If dried yeast is used, a sponge should be made from about ½ cupful of liquid taken from the amount given in the proportions and some of the flour. Allow to rise before adding the cornmeal mixture and the remainder of the flour.

6. Yeast Oatmeal Bread

(Conservation Recipe)

1 c. liquid (milk or water)	½ cake compressed yeast softened in ¼ c. liquid
2 tbsp. sugar	1 c. rolled oats
1 tbsp. fat	2½ c. wheat flour
1 tsp. salt	

This proportion makes one loaf of bread.

Method.—Scald liquid and pour over rolled oats, sugar, salt and fat. Let stand until lukewarm. Add yeast softened in warm water. Add flour and knead. Let rise until double its bulk. Knead again and place in pans. When light, bake 45 minutes to 1 hour in a moderate oven.

Substitute flours may be used in any recipe for breads if the sponge is made with wheat flour and the substitutes added after the first rising.

LESSON 23

BREAD—ROLLS

REVIEW setting sponge for bread. Review temperature for yeast.

The objects of kneading bread and rolls are:—

1. To make the gluten in the dough elastic.
2. To break the large air bubbles, and distribute the carbon dioxide evenly through the dough.

The objects of baking bread are:—

1. To make a more digestible and palatable food.
2. To cook the starch. To expand the gas.
3. To form a crust to hold in the gas.
4. To kill the yeast plants.
5. To drive off the alcohol formed by the yeast plant.

Rolls.—Rolls differ from bread in that they are richer and sweeter. This is done by using all milk for the liquid and adding more butter and sugar to make them shorter or more tender.

Kinds of Rolls.—A variety of rolls is made from the same sponge, but may vary in size, in shape, and by the addition of fruit (currants, raisins) or spices (cinnamon).

Suggestions to teachers on conducting a lesson on rolls in 1½ hours.

Use twice the amount of yeast. Prepare the sponge before class-time, and let it rise ready for first mixing.

At the beginning of the lesson measure out the light sponge for each desk. (Allow 10 minutes.)

Mix flour into the sponge. (Allow 10 minutes.)

Two girls should work together. Knead dough. (15 minutes.)

Demonstrate shaping of rolls. (Allow about 10 minutes.)

Class shape rolls. (Allow about 15 minutes.) Omit the second rising for class work. Let rolls rise in slightly warmed ovens ½ hour.

Class wash dishes. Bake rolls 15 to 20 minutes.

APPLICATION

1. Parker House Rolls (3 hr.)

2 c. milk
1 tsp. salt
2 tbsp. sugar
¼ c. butter
1 cake compressed yeast
¼ c. lukewarm water
6½ c. flour (more or less)

Method.—Mix yeast with the lukewarm water. Scald the milk and add the butter, sugar, and salt; when lukewarm add the dissolved yeast. Add enough flour to make a drop batter. Beat well and let rise until double in bulk. Add enough more flour to make a stiff dough. Knead and let rise until double in bulk. Roll out to about ⅓ inch in thickness. Cut with a cooky cutter, spread with melted butter, and crease the middle with a knife handle. Fold double, put close together in the pan, let rise until double their size. When ready to bake, brush with milk or slightly beaten egg. Bake in a hot oven 12 or 15 minutes.

(*Basis for* 2, ¾ *cup sponge.*)

2. Clover Leaf Rolls

Method.—Use the same rule as for Parker House Rolls. For one roll, shape three small balls of dough about an inch in diameter. Place the balls together in a greased muffin tin. Let rise, and bake as other rolls.

3. Cinnamon Rolls

Method.—Use the same sponge and method as for Parker House Rolls. Roll out sponge to ½ inch thickness, brush with melted butter, sprinkle with sugar and cinnamon. Roll up the dough and cut off rolls an inch thick. Place in buttered pans, let rise, and bake as other rolls.

LESSON 24

PROTEIN—MEAT

Stock Soups

MEAT includes the flesh of all animals used for food; as, beef, veal, mutton, pork, poultry, and game.

Beef is from the ox, steer, or cow.

Veal is from the 6 to 8 weeks' old calf.

Mutton is from the sheep over 1 year old.

Lamb is from the young sheep, 6 to 8 weeks to 1 year old.

Pork is from the pig.

Poultry includes chickens, turkeys, ducks, and geese.

Game includes wild animals and fowl; as, deer, quail, partridges.

Structure of Meat.—Meat consists of muscles, bone, and fat.

The muscles are made up of bundles of fibers or cells bound together by connective tissue. The muscle fibers contain protein, extractives, and water. The connective tissue is very tough. Those of much-used muscles, as in the neck or legs, are much stronger than those of muscles not greatly used, as in the back.

The bones consist of about half solid matter and half water. The solid part is composed of two-thirds mineral matter and one-third animal matter, chiefly fat and ossein. Some bones are hollow, and contain a fatty substance called marrow.

At the ends of bones and connecting bones at the joints are bands of cartilage or gristle, which is like soft bone. In young animals the bones are soft, becoming harder with age.

The fat occurs under the skin, between the bundles of fibers, and around the internal organs.

Composition of Meat.— Meats are similar in composition, but different cuts of the same animal will differ in the proportion of food principles, as will also the same cuts from different animals. This is due to the nature and condition of the animal and the manner of feeding. Meat contains large percentages of protein, fat, and water.

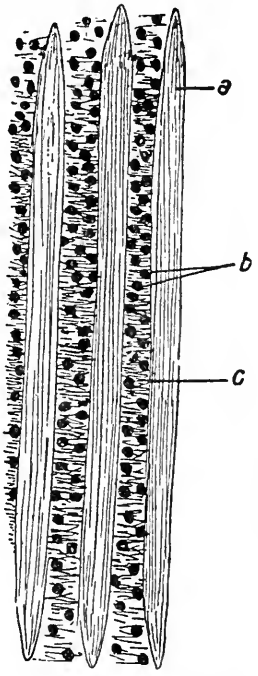

Fig. 17. Diagram illustrating structure of meat: *a*, muscle fibers; *b*, fat cells; *c*, connective tissue. (Hutchison.)

Protein.—The amount of protein is about the same—13 to 20 per cent—in all meat. The principal meat proteins are:—

Fibrin, which is the substance in the blood that makes it coagulate when shed.

Gelatin, extracted from the connective tissue, tendons, and cartilage and bone, by long, slow cooking in water. Gelatin is dissolved in hot water, but thickens when cold.

Albumin, which is similar to that found in eggs, and is the main form of protein in meat.

Extractives or juices of meat, which give the meat its flavor. Young animals have more albumin, while old ones have more nitrogenous extractives.

Fat in meat varies in amount very widely. Much is lost in the preparation for market, in cooking, and at the table, so that only about one-half the amount of fat is available to the body. Older animals well fed have more fat than young animals. The fat takes the place of some of the water, and does not affect the protein.

Water makes up about three-fourths of the weight of meat, but varies greatly—from 50 to 75 per cent. It is much more abundant in the young animal than in the old. Veal and lamb contain more water than beef and mutton.

Mineral matter in meat is less than one per cent. This is found in larger proportions in the older animals and is abundant in the extractives. There is no carbohydrate in meat.

APPROXIMATE COMPOSITION OF MEAT

Protein	Water	Fat	Ash
20%	70 to 75%	2 to 5%	1%

Food Value.—Meat is the most important of the protein foods. It is like the human body in structure and composition and fully supplies the necessary protein and fat to build and repair body tissues and give heat and energy. It is easily and thoroughly digested when used in proper amounts. Fat meats are harder to digest than lean meats, because the fat interferes with the digestion of the protein in the stomach. Meats with loose fibers are easier to digest than those with close fibers, for the digestive juices can act more readily upon them. The extractives stimulate the body activity, and people who use animal food in their diet seem to have a greater vitality than those who live entirely on vegetables.

The objects of cooking meat are:—

1. To extract the juices, as in soups, beef tea; or
2. To retain the juices, as in broiling and roasting.
3. To develop the flavor.
4. To soften the connective tissues and make it more digestible.
5. To kill any bacteria and parasites that may be present.

Experiments to show the effect of heat on meat:—

1. Put a small piece of meat into cold water. Let stand.

2. Put a small piece of meat into boiling water. Let stand.

3. Put a small piece of meat into a hot frying pan, turn several times.

Note the changes that occur in each instance, and compare.

What substance in meat coagulates with high temperature to cause the result in Experiment 2?

How should meat be cooked to extract juices, as in soups? To retain juices, as in steaks and roasts?

Meat Soups.—Soups that have meat as their basis are called stock soups. The stock is the essential element which gives it flavor and nutritive value. Stock is also used in meat gravies to make them richer.

Kinds of stock soups are:—

1. *Bouillon* is made from beef stock, delicately seasoned.

2. *Brown* soup stock is made from beef and is highly seasoned with vegetables and sweet herbs.

3. *White* soup stock is made of chicken or veal, delicately seasoned.

4. *Consomme* is made of several kinds of meat (beef, veal, and fowl), highly seasoned with vegetables, and cleared.

Food Value.—Meat soups contain very little nutriment, but have a strong meat flavor, due to the extractives. They stimulate the flow of the digestive juices, warm the stomach, and prepare it for solid food.

Proportions of ingredients for soup stock are: Use ⅔ lean meat to ⅓ bone and fat, and 1 quart of water to each pound of meat and bone.

Meats for Soups.—The much-used muscles of meat contain more juice; the hard connective tissue is softened by long, moderate cooking. Select meat from the legs or neck. Use left-overs from roasts and steaks to add to the flavor, and utilize all other scraps.

Any of the following may be used as seasoning for soups: vegetables, cereals, herbs, spices, and noodles.

Directions for Soup Making.—Use all trimmings from roasts and steaks with soup meat.

Cut up meat in small pieces. Break the bones, so that the juice may escape easily.

To give color and flavor to the soup, sear a small amount of the meat in a frying pan until brown.

Put meat, bone, and fat in cold water. Soak for half an hour until the water is red. The cold water draws out the juices.

Simmer 5 to 6 hours, never allowing temperature to reach the boiling point. Boiling toughens the albumin and does not permit the flow of juices. Clean and cut up vegetables and add at the last hour of cooking.

When done, strain out the meat and vegetables. Put into several small jars, so that the entire amount is not disturbed each time some is used.

Cool quickly, and keep in cold place. Keep a layer of fat on top of stock to exclude air. Why? Remove the fat from the soup stock before making soup.

Use soups often, and vary by different additions.

APPLICATION (Extracting juices)

1. Brown Soup Stock

4 lbs. beef shin
2 qts. cold water
½ tsp. pepper
6 cloves
½ bay leaf
2 sprigs parsley
Carrot, Turnip, Onion, Celery } one-half c. each cut in dice
1 tsp. salt

NOTE.—A few tablespoonfuls of German dried vegetables for soups may be successfully substituted for fresh vegetables to give flavor.

Method.—Wipe beef, and cut the lean meat in small pieces. Brown a third of it in a hot frying pan in marrow from a marrow bone. Put remaining two-thirds with bone and fat in soup kettle, add cold water, and let stand for ½ hour. Place on back of range, add browned meat, and heat gradually to boiling point. As the scum rises, it should be removed. Cover and cook slowly 6 hours at a temperature below the boiling point. Add vegetables and seasonings, cook 1½ hours longer, strain, and cool as quickly as possible.

2. Bouillon

Method.—Bouillon is made from Brown Soup Stock by removing the cake of fat, and clearing. It is served clear in bouillon cups.

To Clear Soups.—Put stock over fire, and add a slightly beaten egg white with the shell. Stir, let boil 2 or 3 minutes, and then simmer 10 to 15 minutes. The albumen of the egg coagulates and entangles the particles of meat and vegetables as in a net. Remove the scum, and strain the soup through a cloth or fine strainer. Serve clear.

3. Vegetable Soup

Method.—To 1 quart of stock, add 3 tablespoonfuls each of celery and turnip, either chopped or cut with vegetable cutter; 1 tablespoonful of carrot; and 1 cup of cooked and strained tomato, and a little fried onion; or omit the tomato and onion and add small green peas, cauliflower, asparagus tips, or all three.

4. Noodle Soup

Method.—To 1 quart of stock add ¼ cupful of noodles. Macaroni, vermicelli, rice, or barley may be added to the stock for variation.

Serve with soup: croutons, toasted crackers, or cheese balls.

LESSON 25

PROTEIN—BEEF

Broiling and Roasting

BEEF is obtained from the steer, ox, or cow. It is the most used and the most sustaining meat. It should hang about three weeks to ripen and develop flavor.

Appearance.—Good beef is bright red, fine grained, and well marked with fat. The fat is fine and light yellow in color; the fat around the vital organs is white and crumbly and is called suet. Flabby, dark, coarse beef with yellow fat indicates a poor quality. Beef from an old or underfed animal has very little fat.

Cuts of Beef.—The beef animal is cut into halves lengthwise along the back. Each half or side weighs about 450 pounds and is divided into the fore and hind quarters by cutting between the 12th and 13th ribs, leaving one rib on the hind quarter.

THE CUTS OF BEEF

Fore Quarter Cuts

	CUTS	USE	COST
1.	Neck	Hamburg steak, soup	
2.	Chuck	Stew, pot roast, boil	
3.	Ribs	Roast, stew	
4.	Shoulder clod	Boil, stew	
5.	Shin or foreshank	Soup stock	
6.	Brisket	Corned, stew	
7.	Plate	Boiled, corned, stew	

Hind Quarter Cuts

1.	Rump	Pot roast, stew, mince meat	
2.	Round	Pot roast, steak, stew, beef tea	
3.	Loin	Fine roast, steak	
	(a) Porterhouse	Steak	
	(b) Sirloin	Steak, roast	
	(c) Tenderloin	Steak	
4.	Hind shank	Cheap stew, soup	
5.	Flank	Corned, stuff, stew, roll	

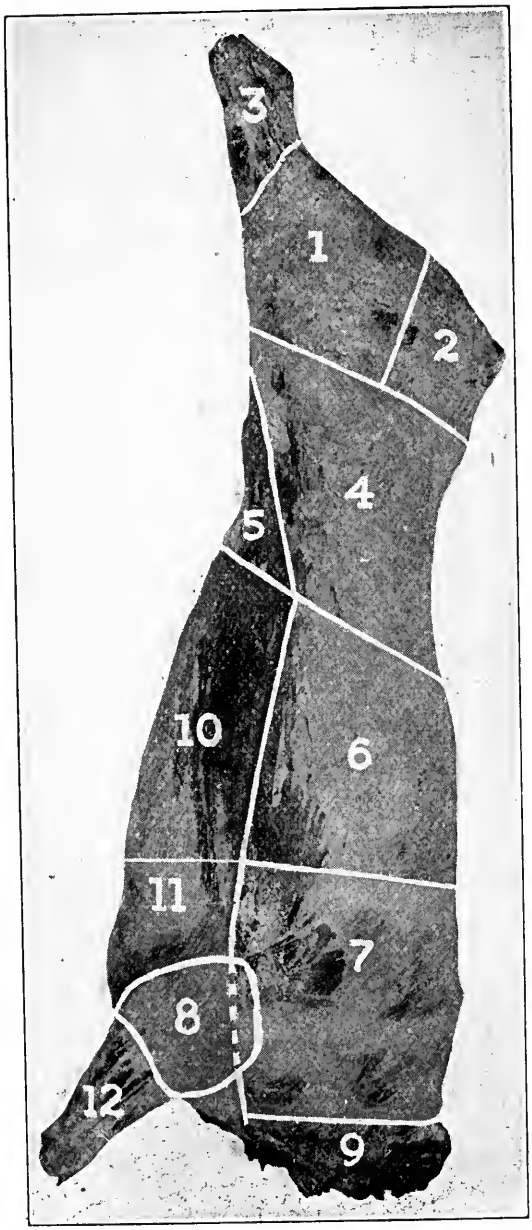

Fig.18. The wholesale cuts of beef: *1*, round; *2*, rump; *3*, shank; *4*, loin; *5*, flank; *6*, rib; *7*, chuck; *8*, clod; *9*, neck; *10*, plate, which includes *11*, brisket; *12*, shank.

Other Parts.

			Cost
1.	Heart	Braise	
2.	Tail	Soup	
3.	Tongue	Boil	
4.	Kidneys	Stew	
5.	Brains	Scallop, cream	
6.	Tripe (lining of the stomach)	Stew, fry	
7.	Suet	Try out, use as fat	
8.	Thymus gland and pancreas (calf), or sweetbreads		

Care of Meat.—1. Remove meat from paper as soon as delivered.

2. Keep meat in a cool place, but not directly on ice.

3. Before cooking always wipe meat off well with a damp cloth wrung out of cold water. Why? Never wash meat in water. Why?

Retaining Juices.—Juices may be retained in the cooked meat by broiling, roasting, frying, or sautéing, which sears over at once the outside of the meat and seals up the little tubes that contain the juices. Only the tender cuts of meat can be used in this way, since tough meats require a long, slow heat.

Broiling.—Cuts best for broiling use are (1) porterhouse, (2) sirloin, (3) tenderloin, and (4) round.

Roasting.—Best cuts for roasting are the top or middle of sirloin, back of rump, or the first three ribs.

TIME GUIDE FOR BROILING

Beef (rare), per pound..... 8 to 10 minutes
Beef (well done), per pound...12 to 15 minutes

APPLICATION

1. Broiled Steak—Oven

Sirloin steak 1 to 2 inches thick
Butter, salt, pepper
Parsley and lemon for garnishing

Method.—Wipe the meat with a damp cloth and trim off the extra fat. Have the broiler smoking hot; rub with a

little fat. Place the meat in the broiler and broil, turning every 10 seconds for the first minute. (Use two large spoons for turning, as a fork would pierce the meat.) After the first minute turn occasionally until well cooked on both sides. Remove to hot platter, spread with butter, and sprinkle with salt and pepper. Garnish with slices of lemon and parsley. Serve with Maître d'Hôtel Butter or Mushroom Sauce.

2. Roast Beef

Method.—Wipe, put on a rack in a dripping pan, skin side down, and rub over with salt and dredge with flour.

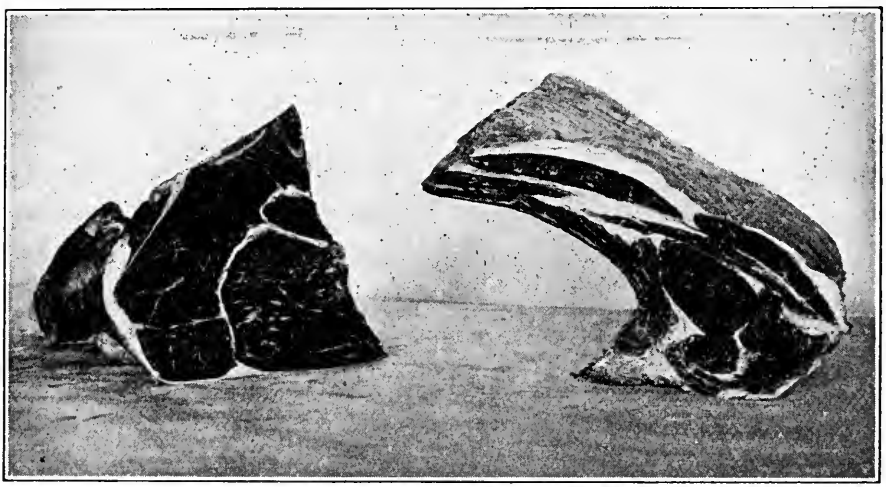

Fig. 19. Beef: cuts from rump and ribs.

Place in a hot oven, that the surface may be quickly seared, thus preventing the escape of inner juices. After the flour in the pan is browned, reduce heat, and baste with the fat that has melted; if meat is quite lean, it may be necessary to put trimmings of fat in the pan. Baste every 10 minutes. If this rule is followed meat will be found more juicy. When meat is about half done, turn it over and dredge with flour, that skin side may be uppermost for final browning. If

there is danger that the flour in the pan may burn, add a small quantity of water.

Allow 15 to 20 minutes to each pound of beef in roasting.

Beef, to be well roasted, should be started in a hot oven and the heat later decreased, so that when carved the slices will be red throughout, with a crisp layer of golden brown fat on top. Beef roasted at a temperature so high that the surface is hardened before heat can penetrate to the center is most unsatisfactory.

Sirloin of rib roast may have the bones removed, and be rolled, skewered, and tied in shape.

Roast Beef Gravy

Method.—Remove some of the fat from the pan, leaving 4 tbsp. Place on the front of the range, add 4 tbsp.flour and stir until well browned, the flour browned in the pan giving additional color to the gravy. Add gradually 1½ cups boiling water, cook 5 minutes, season with salt and pepper, and strain. If the flour should burn in the pan, the gravy will be full of black carbon particles.

3. Yorkshire Pudding

1 c. milk
1 c. flour
2 eggs
¼ tsp. salt

Method.—Mix salt and flour, gradually add the milk, stir until smooth, add eggs, and beat hard. Spread on the bottom of baking pan after removing the roast, until mixture is one-half inch thick. Bake 20 minutes in hot oven. Baste, after the mixture is well risen, with some fat from the roast. Cut in squares and serve on platter surrounding the roast.

4. Maître d'Hôtel Butter

¼ c. butter
½ tsp. salt
1 tbsp. chopped parsley
1 tbsp. lemon juice
½ ssp. pepper

Method.—Rub the butter to a cream, add the salt, pepper, parsley, and the lemon juice. Spread on hot steak.

5. Dried Beef, White Sauce

¼ lb. dried beef sliced thin
1 c. milk
1 tbsp. butter
1 tbsp. flour
¼ tsp. salt
Speck of pepper

Method.—Remove the skin and separate dried beef in pieces, cover with hot water, let stand 10 minutes, and drain. Make a medium white sauce. Add beef to white sauce and heat. Serve on squares of hot toast.

(*Basis for 2 girls, ¼ rule.*)

6. Dried Beef and Macaroni

See page 61.

LESSON 26

PROTEIN—BEEF (Continued)

Pan Broiling

Food Value of Beef.—Beef has the greatest food value of all meat and is in season the year round.

Lean meat is chiefly protein, of a kind that the body can use easily and quite completely. Because meat is high in protein, it is easy to eat more than the body needs, which is harmful. Only very active persons doing much physical work need meat more often than twice a day. For most persons a meat dish once a day is enough. Meat must be accompanied with dishes of the carbohydrate class. Name some.

What to Serve with Beef.—*With steak*, serve fried onions, French fried potatoes, au gratin potatoes, combination salad, or mushrooms.

With roasts, serve either mashed, creamed, or roast brown potatoes, sweet potatoes, peas, corn, currant jelly, or Yorkshire pudding.

Pan broiling is the application of heat to food by means of hot metal. The same results may be obtained as in the oven broil, but it is especially good for the coarser cuts of steaks. Name some.

APPLICATION

1. Panbroiled Steak

Round steak, ¾-1 inch thick Salt, pepper, butter

Method.—Wipe meat with a damp cloth and remove the extra fat. Heat the frying pan very hot. Rub a piece of fat in pan. Put the meat in and as soon as one

side is seared turn to sear the other side. Turn frequently for the first minute. Cook ó or 8 minutes, turning occasionally. Spread with a little butter and sprinkle with salt and pepper. Remove to a hot platter and garnish with parsley for serving.

(*Basis for 2 girls, 1 piece 2½ inches square.*)

2. Hamburg Steak

Method.—Chop fine some raw lean beef, season with salt and pepper, shape in small flat cakes, panbroil in a hot frying pan. A few drops of onion juice or onion cut fine may be added, and also one egg slightly beaten. In forming the cakes, handle as little as possible. Cakes that are pressed too compact will be hard and solid.

(*Basis for 2 girls, ⅓ c. chopped meat.*)

3. Mushroom Sauce

1 can mushrooms
¼ c. butter
¼ c. flour
2 c. brown soup stock
½ tbsp. lemon juice or mushroom liquor
Salt and pepper

Method.—Drain and rinse the mushrooms and chop fine one half of them. Cook 5 minutes with butter and lemon juice; drain. Make brown sauce of butter, flour, and soup stock or mushroom liquor according to Method 1 for white sauce. Cook 10 or 15 minutes, add remaining mushrooms, cut in quarters or slices, and cook 2 minutes. Use fresh mushrooms in preference to canned ones.

Mushrooms become tough easily if handled much; they require only a few minutes to cook.

(*Basis for 2 girls, ¼ rule.*)

LESSON 27

PROTEIN

Cooking Tough Meats and Left-overs

In order that there be no waste to the beef animal, all parts are used. The tough meats require a long, moderate heat to soften the connective tissue and hard muscles. This is accomplished by using them for stews, hash or meat loaf.

Stewing is a combination of extracting part of the meat juice and retaining part by cooking a long time in a limited quantity of water.

APPLICATION

1. Beef Stew

2 lbs. beef (cut into inch cubes)
¼ c. flour
Water
4 potatoes (sliced)
Salt and pepper
1 carrot } cut in ½ inch dice
1 turnip }
2 small onions (sliced)

Method.—Wipe the meat and cut best portions into inch cubes. Put the bone and poorer portions of meat, cut fine, into cold water and cook them slowly. Try out some pieces of beef fat in a frying pan and remove scraps Roll the best portions of meat in flour; cook in a frying pan until brown, stirring with a knife so that all surfaces may be browned. Brown the onions also. Put the meat and onions into the kettle in which the stew is to be cooked. Rinse out frying pan with hot water and turn the water into the stew. Cover meat with boiling water and cook slowly at least 2 hours or until the meat is tender. Remove the bone and poorer portions of meat, strain the liquid

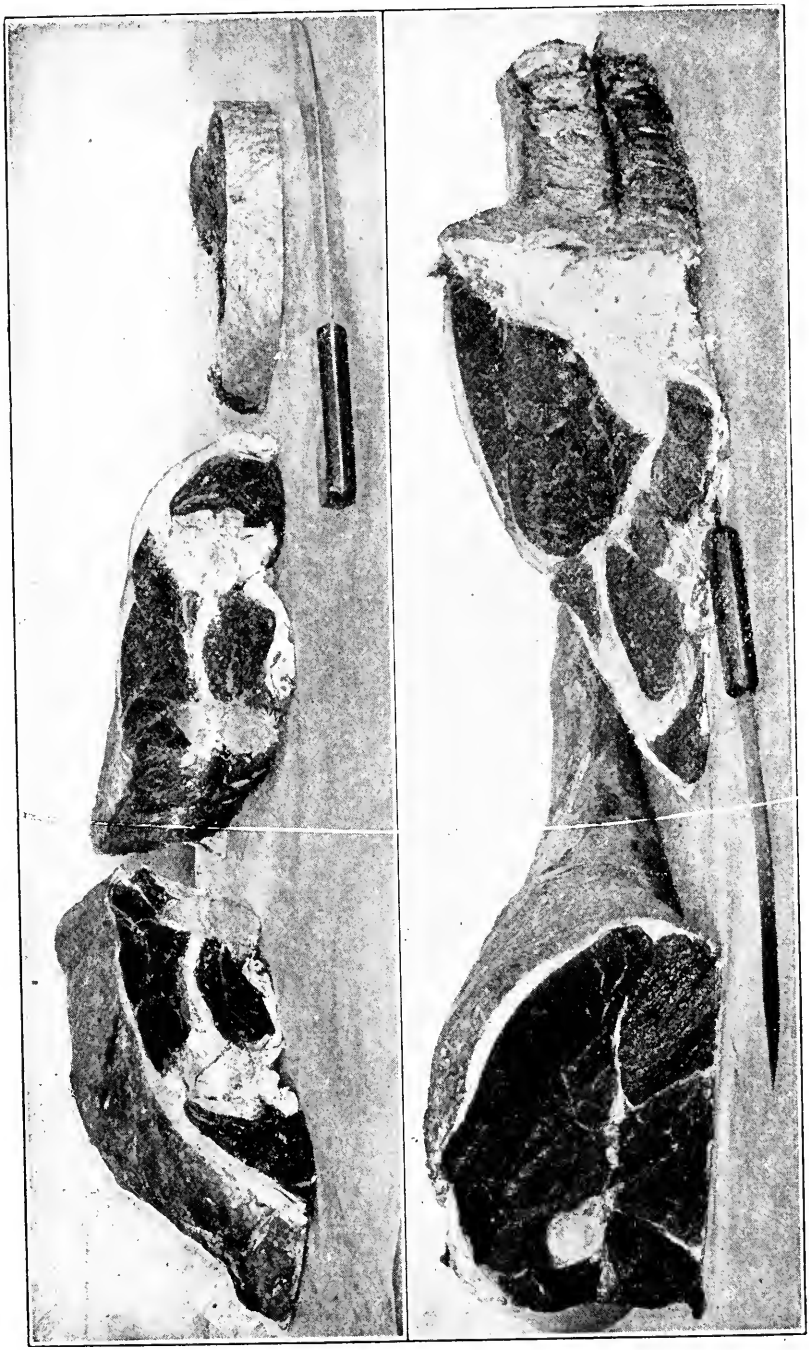

Fig. 20. Beef: (upper) cuts from loin (porterhouse and sirloin); (lower) cuts from round and rump.

into the stew; add the vegetables (excepting potatoes), and cook stew about 45 minutes longer. Parboil the potatoes for 5 minutes and add them to the stew and cook 15 minutes. Add seasoning. If the stew is not thick enough, add a little thickening of flour and water and boil it 5 minutes longer. (Class work as a unit.)

2. Lamb Stew with Dumplings

2 lb. lamb (shoulder)	1 c. tomato
3 c. boiling water	2 small potatoes
1 small onion	2 tbsp. rice

Salt and pepper to taste

Method.—Wipe meat and cut best portions into 2-inch pieces. Put the bone and poorer portions of meat into cold water, let them stand 1 hour, and then cook them slowly. Brown the onions a golden brown in hot fat in a frying pan. Then add the best portions of the meat and brown them also. Put the onions and meat into a saucepan, cover them with boiling water and let simmer 2 hours. Add the washed rice when meat has cooked 1 hour. Parboil the potatoes, add them to the stew and cook 20 minutes longer. Add the strained tomato 10 minutes after the potatoes are put in. Add the seasoning. The tomato may be omitted and boiling water used in its place.

3. Dumplings for Lamb Stew

2 c. flour	½ tsp. salt
4 tsp. baking powder	¾ c. milk

Method.—Mix and sift the dry ingredients, add the milk slowly until a smooth drop-batter is formed. Drop by the spoonful into the boiling stew on top of the potatoes and meat. Cover closely to keep in the steam, and cook 10 minutes without lifting the cover. Take out the dumplings, which should be light and fluffy, put the meat and vegetables in the center of a hot platter, and the dump-

lings around the edge. Dumplings may be dropped into a steamer and steamed over the hot stew or over a kettle of boiling water.

(*Basis for 2 girls, ¼ rule.*)

4. Boiled Dinner

4 lb. corned beef
2 beets
1 small cabbage
2 small carrots
1 turnip
6 potatoes

Method.—Wash meat with damp cloth and put it to soak for ½ hour. Put it in a kettle with boiling water to nearly cover and cook until tender (about 3 hours). Wash the vegetables, scrape carrots and turnip, and cut in small pieces. Cut the cabbage into quarters. Pare potatoes and cut into halves. Two hours before dinner time skim all the fat off the liquid and add more boiling water. Remove meat when tender; then put in the carrots, afterward the cabbage and turnip, and ½ hour before dinner add the potatoes. Cook beets separately. When tender take the vegetables up carefully, drain the water from the cabbage by pressing in a colander, slice the carrots and beets, and cover the beets with vinegar. Put the meat in the center of a large dish, and serve the carrots, turnips, and potatoes around the edge.

5. Browned Hash

2 c. chopped cold roast beef
2 c. cold boiled potatoes
Few drops of onion juice
2 c. chopped cold corned beef
2 tbsp. hot milk
Salt and pepper to taste

Method.—Mix all ingredients thoroughly. Put into a frying pan 2 tablespoonfuls of beef fat or butter. Spread the meat mixture in the frying pan and cook, without stirring, over a moderate fire for about 30 minutes. When it is browned underneath, fold it over like an omelet and place on a hot platter.

6. Meat Loaf

2 lb. beef (cut from the round)
1 tsp. salt
1 beaten egg
1 tbsp. chopped parsley
1 tsp. onion juice
¼ tsp. pepper
½ c. milk
2-inch cube salt pork fat
1 c. bread crumbs

Method.—Wipe the meat with a damp cloth and put through a meat chopper with the pork. Add seasoning, mix well, add the crumbs, well-beaten egg, and the milk gradually. Place in a well-greased pan. Put small pieces of butter or strips of bacon on top. Bake 40 minutes in a moderate oven. Baste every 10 minutes with 1 tablespoonful of butter melted in 1 cupful of boiling water.

Strips of pimento and a couple of hard-boiled eggs placed in the center of the loaf add a pleasing garnish to the loaf when sliced.

7. Chartreuse of Rice and Meat or Fish

1 c. rice
2 qts. boiling water
1 c. stock
1 pt. cold meat or fish
1 c. tomato sauce
1 egg

Method.—Cook the rice in the boiling water until tender. Drain and line a mold about a half inch deep. Beat the egg slightly and mix with the finely cut meat or fish, then add the stock. Fill the center of the mold with the meat mixture, cover the top with rice and steam 30 minutes. Turn from the mold and serve with tomato sauce.

Boiled hominy or mashed potato may be used in place of the rice.

LESSON 28

PROTEIN—VEAL, LAMB, MUTTON

VEAL

Appearance.—Veal is pale pink and the fat is clear white. The best comes from a calf two months old.

CUTS OF VEAL

CUT	USE	COST
1. Leg	Cutlets	
2. Loin	Chops and roast	
3. Ribs	Roast	
Saddle [(1) and (2), or two hind quarters)]	Roast	
Rack [(3), (4), (5), or two fore quarters)]	Chops	
4. Breast	Roast	
5. Shoulder	Stuffed whole for roast	
6. Neck	Stew	

LAMB

Appearance.—The meat of lamb is red and the fat is white. The bones are red and turn white with age.

Kinds.—Spring lamb is from 6 to 8 weeks old. Yearlings are about one year old. The best lamb comes from animals 6 weeks to 3 months old. Lamb may be used as soon as killed.

MUTTON

Appearance.—The meat of mutton is bright red, the fat is yellowish, and the bones are white. The layer of fat next to the skin in mutton has a very strong flavor of oil and wool, which makes it very distasteful to most persons. This should be removed before cooking. Mutton must hang to ripen.

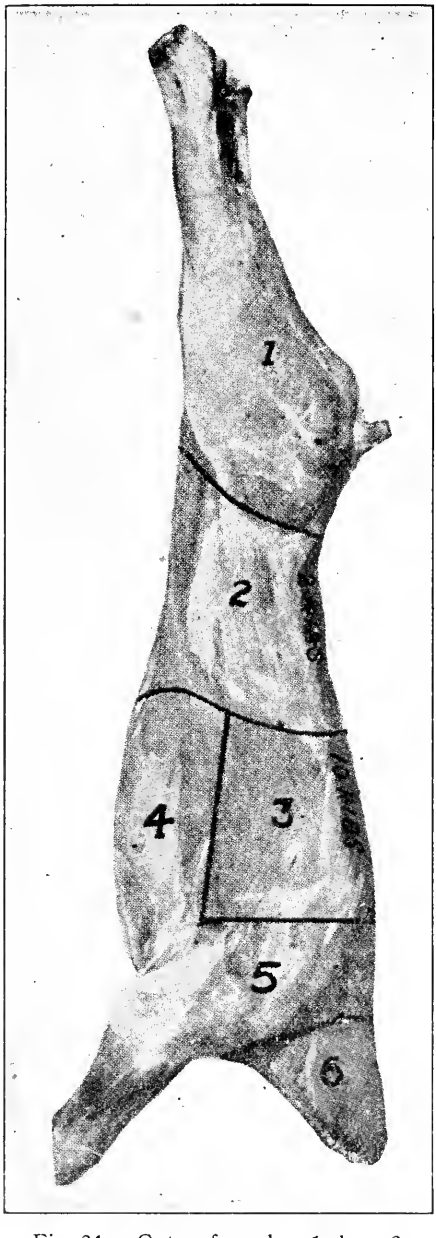

Fig. 21. Cuts of veal: *1*, leg; *2*, loin; *3*, ribs; *4*, breast; *5*, shoulder; *6* neck. (Ill. Bul. 147)

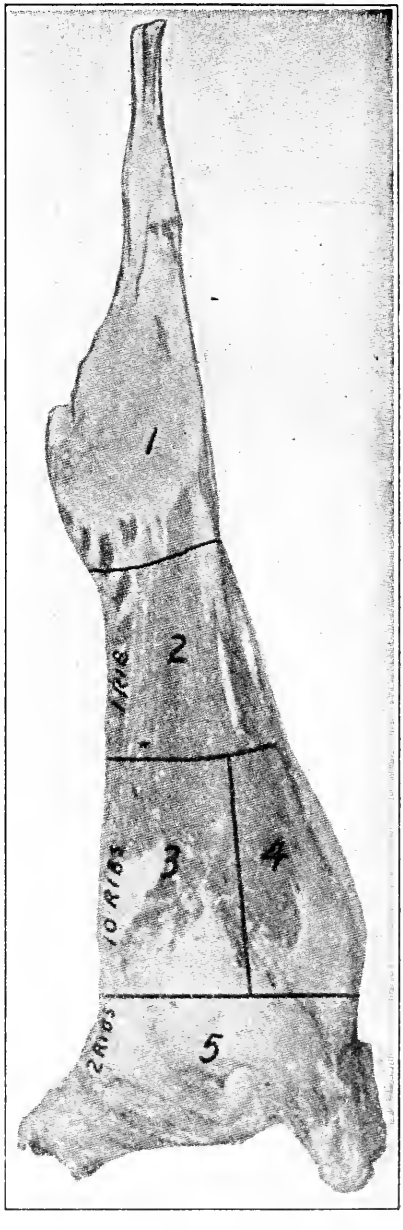

Fig. 22. Cuts of mutton: *1*, leg *2*, loin; *3*, ribs; *4*, breast; *5*, shoulder

CUTS OF LAMB AND MUTTON

CUT	USE	COST
1. Leg	Roast and chops	
2. Loin	Chops, saddle roast	
3. Ribs	Chops and roast	
4. Breast	Stew and soup	
5. Shoulders	Roasts	
Back [(2), (3)]		

Food Value.—Mutton comes next to beef in food value. The red meat of beef and mutton is more stimulating than the white meat of veal and poultry. Veal and lamb are less nutritious than the flesh of the full-grown animals.

What to Serve with Veal.—*With cutlets* or *chops* serve peas, rice croquettes.

With stewed veal serve dumplings, baked potatoes.

With veal loaf or roast serve peas, asparagus, spinach, cauliflower, rice, white or sweet potatoes.

What to Serve with Mutton.—*With broiled chops* serve creamed potatoes, peas.

With leg of mutton serve caper sauce, rice, mint sauce, cabbage, or creamed turnips.

With saddle of mutton serve baked macaroni without cheese, peas, or asparagus tips.

With cold mutton serve sliced tomatoes with French dressing.

What to Serve with Lamb.—*With roast lamb* serve mint sauce, boiled rice, cucumbers, white or sweet potatoes, squash, parsnips, eggplant, new peas, or asparagus tips.

With cold lamb serve lettuce, mint salad with French dressing.

APPLICATION

1. Lamb Chops Broiled

Method.—Wipe chops and put in red-hot frying pan. As soon as the under surface is seared, turn and sear the other side. Turn often, using spoon, so as not to pierce

surface. If liked rare, cook 6 minutes. Let chops stand on edge in the frying pan to brown the outside fat. When nearly cooked, sprinkle with salt. Drain on brown paper, spread with butter, and serve with Tomato Sauce.

Rib chops which have the bone cut short and scraped clean nearly to the lean meat are called *French chops.* Chops for pan broiling should have the flank and most of the fat removed.

2. Breaded Veal Chops

Method.—Wipe, trim off superfluous fat, sprinkle with salt and pepper, dip in crumbs, in egg, and then again in crumbs, and fry until well browned on each side. Care

Fig. 23. Veal: cuts from leg and loin.

should be taken in turning not to shake off the crumbs. Cover closely and continue cooking over a low fire until thoroughly cooked and tender (15 to 20 minutes). Veal cutlets may be cooked in the same way. These may be cooked in deep fat.

(*Basis for* 2, 1 *chop or cutlet.*)

3. Roast Lamb

Method.—Wipe meat (leg of lamb), sprinkle with salt and pepper, place on a rack in dripping pan, and dredge meat and bottom of pan with flour. Place in hot oven, and

baste as soon as the flour in the pan is brown and every 15 minutes afterward. Cook about 1¾ hours. If the flour in the pan burns, add a small quantity of water while the meat is cooking. Serve with Mint Sauce.

4. Mint Sauce

½ c. mint leaves chopped fine 2 tbsp. powdered sugar
1 c. hot vinegar

Method.—Dissolve the sugar in the vinegar and pour over the chopped mint leaves. Let stand 30 minutes to infuse. If the vinegar is very strong, dilute with water. Serve hot.

5. Veal Birds

Method.—Select slices of veal from the leg, cut as thinly as possible, remove bone, skin, and fat. Cut in pieces 2½ inches long by 1½ inches wide, each piece making a bird.

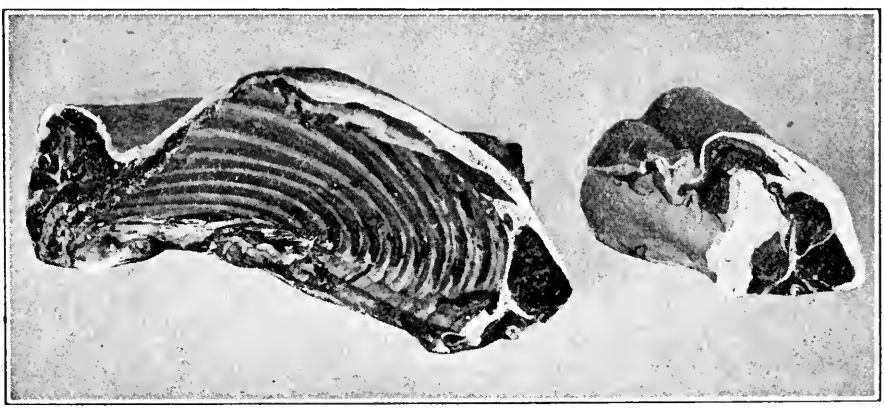

Fig. 24. Lamb: cuts from ribs and loin.

Chop trimmings of veal and a small piece of fat salt pork, and add one-half their measure of finely crushed crackers. Season with pepper, cayenne, poultry seasoning, lemon juice, and onion juice. Moisten with beaten egg and water. Spread each piece with a thin layer of stuffing,

taking care not to have the mixture come too close to the edge. Roll, and fasten with skewers or toothpicks. Sprinkle with salt and pepper, dredge with flour, and sauté in hot butter until a golden brown. Put in a stew pan, add rich milk to half cover meat, and cook slowly 25 minutes or until tender. Serve on small pieces of toast and garnish with parsley.

6. Veal Loaf

2½ lbs. veal	⅓ c. catsup
½ lb. salt pork	1 c. cracker crumbs
4 eggs	Cayenne, salt, pepper
Juice of small lemon	Bit of butter

Method.—Mix ingredients thoroughly and shape into a loaf, placing butter on top. Bake 2 hours in covered pan. May be served with border of peas.

7. Crown Roast

Method.—Use lamb rather than mutton. Select parts from two loins containing the ribs; scrape flesh from the bone between ribs, as far as lean meat, and trim off back bone. Roll meat displaced into a semicircle, having ribs outside, and sew ends together to form a crown. Put a cup in the middle to hold the roast in place. Trim ends of bones even and bind each bone with a thin strip of fat salt pork. For a small roast allow about 50 minutes for roasting. Remove the pork from the bones before serving. Fill the center of roast with mashed potatoes or peas. Be sure the ribs are separated at the joints before roasting, so that they may be easily served.

LESSON 29

PROTEIN—PORK

Appearance.—Fresh pork is pale red in color and firm in texture; the fat is white. Pork is more liable to be diseased than any other meat. Diseased pork appears speckled or lumpy. The specks are little worms, called trichinæ, which get into the muscle of the hog. When taken into our bodies, these are very harmful. They become active and produce a disease called trichinosis, which is nearly always fatal.

For this reason pork should be cooked very thoroughly to kill the trichinæ. Pork requires 20 to 30 minutes per pound for cooking. Smoking *does not* kill trichinæ. The frequent use of smoked ham without further cooking is liable to be very injurious.

CUTS OF PORK

CUT	USE	COST
1. Loin and ribs	Chops, roast, broil	
2. Ham, whole or in halves	Cured, salted, smoked,—boiled sautéd, or baked	
3. Back	Spareribs	
4. Shoulder	Cooked as ham, but not as good.	
5. Belly—bacon	Cured, salted, smoked,—boiled, or sautéd	
6. Head	Headcheese, sausage	
7. Kidney fat	Tried out to make "leaf-lard."	

Food Value.—Pork is usually so fat that it is difficult to digest. This is due to the large amount of fat between the fibers. It furnishes so much heat and energy to the body that, together with other foods in the diet, it may furnish an excess of heat, and for most persons must not be used as

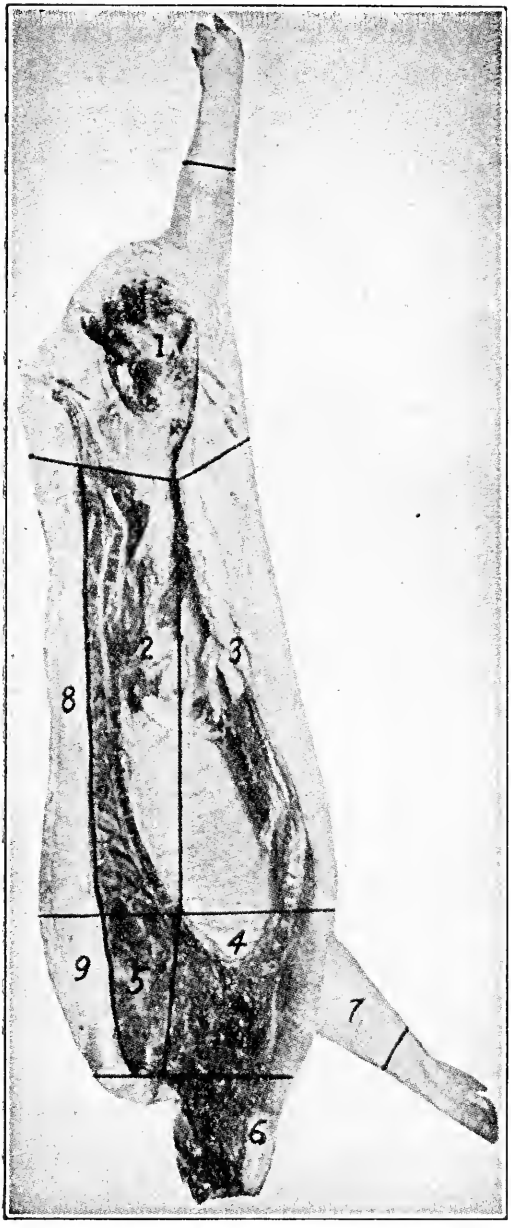

Fig. 25. Cuts of pork: *1*, ham; *2*, loin; *3*, belly; *4*, *5*, *7*, *9*, shoulder, *6*, jowl; *8*, *9*, fat back. (Ill. Bul. 147)

regularly as beef. Bacon is not difficult to digest and can be eaten by persons to whom other fats are intolerable.

What to Serve with Ham or Pork.—White or sweet potatoes, squash, beets, greens, cauliflower, cabbage, apple sauce, fried apples, fritters or croquettes, all go well with pork dishes.

APPLICATION

1. Broiled Ham

Method.—Soak thin slices of ham one hour in lukewarm water or milk. (Milk makes the ham more tender and

Fig. 26. Pork: cuts of loin and bacon.

juicy.) Drain and wipe dry and broil in a hot frying pan for 5 minutes. If cooked too long, ham is hard and dry.

Boiled ham sliced about ½ inch thick and broiled is very good, but more expensive.

2. Liver and Bacon

Method.—Cover slices of liver cut ½ inch thick with boiling water and let stand 5 minutes to draw out the blood; drain, and remove the thin outside skin and veins. Cut in pieces for serving, sprinkle with salt and pepper, dredge

with flour and cook in bacon fat. Use thin slices of bacon. Put in a hot frying pan and cook until bacon is crisp and brown, occasionally pouring off the fat from the pan. When crisp and an even brown, drain on paper and serve. Fried sliced apples are very good served with crisp bacon.

(*Basis, each a piece of liver and bacon.*)

3. Mustard (to serve with ham)

2 hp. tsp. dry mustard
1 hp. tsp. flour
Vinegar enough to thin
1 hp. tsp. sugar
½ hp. tsp. salt

Method.—Mix thoroughly and pour boiling water on to it to make a paste; cover until cold, and then thin with vinegar.

4. Pork Chops

Method.—Wipe chops, sprinkle with salt and pepper, place in a hot frying pan, and cook slowly until tender

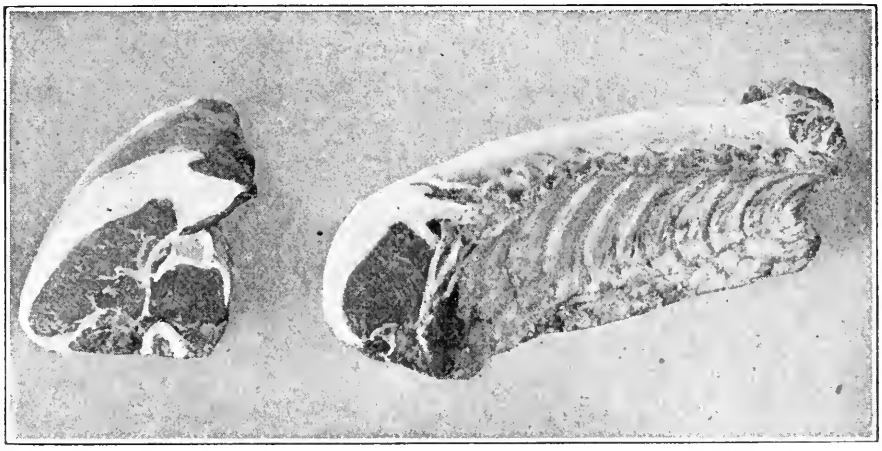

Fig. 27. Pork: cuts from loin and ribs.

and well browned on each side. Pork chops require about 20 minutes for thorough cooking.

A little freshly ground sage adds a nice flavor to pork

5. Baked Ham

Method.—Select a piece of ham about 4 or 5 pounds in weight. Soak several hours in cold water to draw out the salt. Place in baking pan and cover with a thick layer of brown sugar, with fine bread crumbs on top. Stick a few cloves in the ham and fill the pan with milk or cream to come two-thirds as high as the ham. Raisins may be put on the ham (stuck on with toothpicks), giving a very pleasing flavor. Bake, allowing ½ hour for each pound.

6. Pigs in Blanket

Method.—Select long, thin slices of bacon. Place 2 or 3 oysters in these, sprinkle with salt and pepper, close, and tie with string or fasten together with toothpicks. Sauté in a frying pan until nicely browned.

7. Fried Pork (salt)

Method.—Cut fat salt pork in thin slices. Put enough hot water over the slices to cover. Let stand a few minutes, drain and sauté in a pan until crisp. It may be rolled in crumbs, egg, and crumbs again, and fried in deep fat. Serve with salt fish, fried mush, or baked potatoes.

LESSON 30

POULTRY

Selecting Poultry.—Spring chickens are those about five months old. A chicken over a year old is called a fowl. Poultry has a better flavor when full-grown than when too young.

The bird should be short and plump in proportion to its weight.

The skin should be clear and smooth, but not the smoothness due to scalding.

The legs should be smooth; toes pliable.

The end of the breast bone should bend readily; it should not be broken. There should be a large amount of meat on the breast.

Pin feathers indicate a young bird; long hairs and long sharp spurs, an old one.

Old fowls usually have a large amount of fat, and the flesh has a purplish tinge.

Dressing a Fowl.—All poultry should be dressed as soon as killed. The feathers come out easily when the fowl is warm and when stripped off towards the head. Remove the pin feathers with a knife, and singe the hairs by holding the bird over a gas burner or a lighted paper.

Cut off the head and the feet.

Turn down the skin of the neck and cut off the neck close to the body; remove the crop and the windpipe from the end of the neck rather than by a cut in the skin, which, if made, must be sewed up.

Remove the tendons in the legs by pulling out carefully one at a time, taking pains not to tear the flesh. The leg of the fowl is more tender if the tendons are removed.

Remove the oil bag in the tail.

Make an incision near the vent, and loosen the fat from the body of the fowl. Loosen everything before drawing out, so as to avoid rupturing any part. Insert the hand carefully between the walls of the body and the entrails and draw the entrails out, using care not to break the gall bladder on the liver. Be sure the lungs and kidneys are all removed from the hollows of the backbone. Wash thoroughly, holding under a faucet to rinse the inside well.

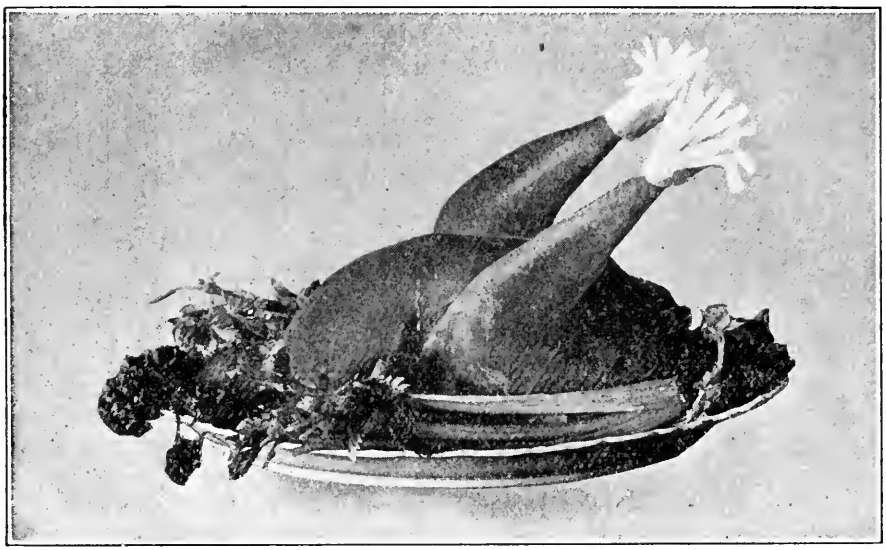

Fig. 28. Roast chicken, dressed for serving.

To clean the giblets: Detach the heart, liver, and the gizzard. Cut through the thick muscle of the gizzard and peel it off slowly without breaking through the lining inside. Cut the heart open. Remove the gall bladder very carefully from the liver. Wash all thoroughly and let soak in salted water before cooking.

To Stuff a Fowl.—Place the fowl in a bowl and stuff the neck until the breast is plump; then draw the skin over the

neck and sew it firmly. Fill the inside of the fowl with the stuffing, and sew up with a coarse thread, taking large stitches.

To Truss a Fowl.—Draw the thighs close to the body, cover the legs over the tail, and tie firmly with twine. Fasten the wings to the body with skewers.

To Cut up a Fowl.—Separate the legs from the body by cutting through the loose skin between the leg and the body, bend the leg over and cut through the joint. Pull out the tendons from the lower leg, or "drum stick."

Cut off the tip of each wing.

Separate the collar bone and the wishbone from the breast, and break the backbone just below the ribs.

Separate the side bones from the back and also the breast.

Always divide a fowl at the joints smoothly; never break the bones.

Food Value.—The light meat of poultry is tender, but poorer in flavor than the leg, a difference similar to the loin and the round of beef. The muscle fibers in the breast are short, more open, and less used, which make the breast tender and more easily digested than the dark meat. Poultry is not as rich in food value as beef, but is easily digested, very palatable, and especially suitable for the sick.

What to Serve with Poultry.—White or sweet potatoes, rice croquettes, celery, cucumbers, mushrooms, apple croquettes, cranberry jelly in molds, and either oysters or chestnut dressings are good to serve with poultry. With turkey, chestnuts, oysters, or sausage are excellent for dressing.

APPLICATION

1. Roast Chicken

Method.—Put dressed bird on a rack in the roaster, rub its entire surface with salt, and spread breast and legs

with 3 tbsp. butter creamed with 2 tbsp. of flour. Dredge bottom of pan with flour. Roast in a hot oven, basting every 10 minutes until done. Use ¼ cup melted butter in ⅔ cup boiling water for basting at first; later the fat in the pan may be used. Turn the bird frequently to brown evenly. If a thick crust is desired, dredge with flour a couple of times. When the breast meat is tender, the bird is done. A four-pound bird requires about 1½ hours for roasting.

2. Stuffing

1 c. cracker crumbs.
⅓ c. butter
⅓ c. boiling water
Salt and pepper
Powdered sage

Method.—Melt the butter, pour over the crumbs, add seasonings.

3. Oyster Dressing

3 c. stale bread crumbs
½ c. butter, melted
Salt and pepper
1 pt. oysters

Method.—Mix in the order given, adding the oysters cleaned and drained from their liquor.

4. Fried Chicken

Method.—Wipe each piece of chicken with a clean, dry cloth; dredge with salt, pepper, and flour. Put plenty of salt pork fat or lard and butter in the pan, and sauté the chicken in the hot fat until brown and tender (about 30 minutes). Only spring chicken ought to be fried, as old birds require longer cooking.

5. Broiled Chicken

Method.—Split a young chicken down the back. Break the joints, remove the breast bone, clean, and wipe with a dry cloth. Season with salt and pepper and rub well with soft butter. Put into a broiler or toaster and broil over a clear fire about 20 minutes. Spread with butter and serve hot. Garnish with parsley and lemon.

6. Fricasseed Chicken

Method.—Cut and prepare the chicken as for frying. Cover with boiling water, and add 1 tbsp. of salt and a little pepper. Simmer 2 or 3 hours, or until tender. Reduce the water until about a pint remains. Remove all the large bones, dredge with flour, salt, and brown in hot fat. Strain the liquor from the chicken, remove the fat, add 1 cup of milk or cream to the liquor, and reheat. Thicken with 2 tablespoonfuls of flour, moistened with ¼ cup milk; add to the liquor. When the gravy or sauce is cooked and thickened, add to the chicken. Serve with or without hot biscuits.

7. Chicken Pie

Method.—Chicken fricassee put in a baking dish and covered with a crust of pastry and baked, makes a chicken pie.

8. Jellied Chicken

Method.—Remove the skin and bones from a cooked chicken. Pick the meat apart and mix the light and dark meat. Remove the fat from the chicken liquor; season the liquor highly with salt and pepper and a little lemon juice. Cook down to about one cupful. Butter a mold and decorate the bottom and sides with slices of hard-boiled eggs. Pack the meat in solid and set away to cool for several hours. When ready to serve, dip the mold in warm water, turn out carefully. Garnish with celery tips and lemon.

LESSON 31

PROTEIN—GELATIN

Source and Manufacture.—When the bones, connective tissue, hoofs, skin, etc., of animals are cooked a long time, much of the material becomes a jelly, and is called gelatin. Scraps of hide, horns, etc., are used in the same way to make glue, which is a crude form of gelatin. The purest and best gelatin is made from the air bladders of fish, especially sturgeon, and is called isinglass.

Appearance.—Gelatin is transparent and tasteless. Commercial gelatin is in three forms, (1) granulated, (2) shredded, and (3) sheet. There are many kinds of each on the market.

Food Value.—Although gelatin contains nitrogen and is classed as a protein, it is not a tissue-builder. The body uses it to produce energy, and as such is a great protein-sparer. By this we mean that it saves protein for tissue-building that might otherwise be consumed for heat and energy. It is one of the most easily digested of foods, and for this reason is very suitable to serve to the sick and convalescent.

Effects of Water on Gelatin.—1. Gelatin does not dissolve in cold water; it only softens and swells.

2. Gelatin dissolves in boiling water.

3. Dissolved gelatin gets thick when cool. A solution as weak as 1 per cent will set.

4. Gelatin will not thicken if boiled before cooling.

Directions for Use.—1. The ordinary proportion is 1 oz. of gelatin to about 1 quart of liquid. In hot or cold weather, more is required. As served, then, the jelly does

not usually contain over 3 per cent of gelatin. Granulated gelatin is more easily measured than either the shredded or the sheet form. A 2-oz. box holds 5 tablespoonfuls. Too much gelatin makes the jelly taste of it.

2. When gelatin is well soaked, dissolve with boiling water, but do not boil or stir much.

3. If fruit is used, more gelatin is needed.

4. Add sugar to gelatin while the water is hot, to dissolve the sugar.

5. Add flavoring and fruit juice after gelatin is dissolved.

6. Strain through a wet cloth or a fine strainer into a wet mold.

7. Put on ice or in a pan of ice water to stiffen. This takes from 3 to 5 hours.

8. To vary the flavor and color, use different flavors; as, cinnamon, fruit, meat; or a good coloring, *sparingly*.

9. To make jelly and fruit in layers, put a part of the gelatin with fruit into the mold, let stiffen, keeping remainder warm in a pitcher set in warm water. Then make a second layer, and repeat until all the gelatin is used.

10. To remove jelly from the mold, dip mold into, and immediately out of, hot water. Turn upon a serving dish.

APPLICATION

1. Lemon Jelly

1½ tbsp. granulated gelatin
¼ c. cold water
1½ c. boiling water
Spk. salt
¾ c. sugar
⅛ c. lemon juice

Method.—Soak gelatin in cold water to soften (about 5 minutes). Add the boiling water and the sugar and stir until dissolved. Add the flavoring or fruit juice. Strain through a wet cheesecloth or fine strainer into a cold, wet mold. Let stand in a pan of ice water to stiffen.

(*Basis for 2 girls, ¼ rule.*)

2. Orange Jelly

2 tbsp. granulated gelatin
¼ c. cold water
1½ c. boiling water
⅔ c. sugar
Spk. salt
½ c. orange juice
2 tbsp. lemon juice

Method.—Same as Lemon Jelly.

3. Snow Pudding

Use the Lemon Jelly rule.

Method.—Beat white of 3 eggs until stiff and dry, and when the jelly begins to thicken add the beaten whites. Beat until the jelly is stiff and nearly firm; then pour it into a cold, wet mold or into custard cups. Serve with *soft custard* made from—

2 c. scalded milk
2 eggs (yolks)
4 tbsp. sugar
Spk. salt
½ tsp. vanilla

Method.—Beat yolks slightly, beating in the sugar and salt; add the hot milk, slowly stirring the mixture all the while. Pour into a double boiler and cook, stirring constantly, until the custard coats the spoon (about 5 minutes). Strain at once and add the vanilla.

4. Tomato Jelly Salad

1 can stewed and strained tomatoes
1 tsp. salt
1 tsp. powdered sugar
3 tbsp. gelatin

Method.—Soak the gelatin 15 minutes in ½ cup of cold water; add the tomato, sugar, and salt. Pour into small cups and chill. Turn the jelly out of the mold, place on lettuce leaves and garnish top of each with mayonnaise dressing.

5. Pistachio Salad

½ box gelatin
½ c. cold water
2 c. boiling water
Juice of 2 oranges and 1 lemon
¾ c. sugar
½ lb. walnuts
4 c. celery

Method.—Soak the gelatin in cold water; add boiling water and fruit juice, and color green with very little color-

ing; add the sugar and, when entirely dissolved, strain. Pour into molds, and when it begins to thicken add the nuts and celery. Serve as a garnish with meats or as a salad with cooked dressing.

6. Meat Jellies

Method.—Jellied veal or chicken is made by cooking the meat a long time, reducing the meat stock, removing the meat from the bone, and packing in a mold with the meat liquor. Enough gelatin is extracted to mold the meat without adding commercial gelatin.

7. Junket

¾ c. milk
1 tbsp. sugar
¼ tsp. vanilla
¼ junket tablet
1 tsp. cold water
Pinch of salt

Method.—Dissolve the junket tablet in the cold water. Heat the milk until lukewarm, add the salt, sugar, vanilla and the junket-mixture. Pour quickly into small molds, let stand in a warm place until firm, then chill before serving. Remove from the molds, serve with cream.

8. Caramel Junket

Method.—Caramelize 2 tbsp. of sugar and add 2 tbsp. of boiling water. Boil together until reduced to 1 tbsp. Use in place of vanilla for flavoring in the above rule.

LESSON 32.

PROTEIN—MEAT SUBSTITUTES

Food authorities agree that as a race the American people eat too much meat.

To reduce the amount of meat in the diet and frequently substitute dishes consisting of vegetable protein or meat equivalents would give greater powers of endurance and prevent many ills.

Protein is essential in the diet, but there are many different forms in which it may be served. Meat is the chief protein food on account of its high protein content together with its valuable mineral salts which give it rich flavor. Eggs and milk are also valuable protein foods, but are lacking in flavor. Meat substitute dishes, include any protein food which furnishes an equivalent amount of nourishment in the diet. Such foods include: milk, eggs, cheese, nuts, peas, beans, lentils, alone or in combination. Cheese and nuts are very concentrated foods, expensive, and are better served in combination with bread crumbs or rice, to avoid digestion disturbances and keep the food cost at a minimum.

Form of Dishes.—Most meat substitute dishes consist of two or more foods in combination. They are usually served in the form of a loaf and steamed or baked and served with a white or tomato sauce, or prepared in a casserole, as a scalloped dish or soufflé, or served together in a salad or cream soup. Left-over vegetables from dinner may form the basis for a meat substitute dish for the next day's lunch or dinner and not only serve to utilize economically all bits of food, but go to make an attractive dish rich in food value. Dry bread, rolled fine and sifted may

be used on the top of many of the casserole dishes with bits of butter giving the dish a rich brown color when baked.

1. Pea Soufflé

1 c. split dried peas or
1 c. canned peas
1 tsp. salt
4 tbsp. milk
4 egg whites

Look over and wash the peas in cold water. Put in a kettle with cold water to cover and bring to a boil. Drain, cover with fresh boiling water and boil 1 hour. Press through a sieve, add the salt, pepper, and milk. Beat the egg whites stiff and fold into the pea mixture. Butter a baking dish, turn in the mixture and bake in a moderate oven 20 minutes. Serve as soon as removed from the oven.

2. Peanut Butter Loaf

1 c. peanut butter
1 c. mashed potatoes
1 egg
2 tbsp. finely chopped parsley
2 tsp. salt
2 tsp. grated onion
½ tsp. grated nutmeg
⅛ tsp. paprika

To the hot mashed potatoes add the peanut butter, 1 well beaten egg, parsley, onion, nutmeg, salt and paprika. Mix well. Put in a baking pan which has been brushed with butter and bake in a hot oven from 35 to 40 minutes.

3. Lima-Bean Loaf with Bacon

¼ lb. thinly sliced bacon
3 c. lima beans
1 tsp. salt
⅛ tsp. pepper
1 tbsp. grated onion
1 tbsp. parsley
1 egg
2 tbsp. egg crumbs
1 c. cream sauce

Wash and soak the beans over night; drain; cover with boiling water; cook until tender; drain, and mash through a coarse strainer; add seasonings, egg well beaten and cream sauce. Keep 1 teaspoon of beaten egg for top of loaf. Mix all together. Brush a baking pan with drippings, fill with the mixture, brush top with beaten egg and sprinkle with bread crumbs. Bake in a moderate oven 40 minutes. Turn out on a platter and garnish with bacon curls and parsley.

4. Scalloped Corn

1 can corn
1 c. milk
2 tbsp. flour
2 tbsp. butter
Spk. pepper
2 tsp. sugar
1 c. bread crumbs (stale)
¼ c. melted butter
1 tsp. salt

Method.—Make a white sauce of the milk, flour, butter, salt, and pepper, and add the corn and sugar. Cover the bottom of a buttered baking dish with a layer of corn and sprinkle heavily with buttered crumbs. Repeat until the dish is full. Add buttered crumbs and grated cheese to top, and bake until nicely browned (about 20 or 30 minutes).

(*Basis for 2, ⅛ rule.*)

5. Salmon Soufflé

2 tbsp. butter
1 c. milk
4 eggs
2 tbsp. flour
1 c. salmon
⅛ tsp. salt

Method.—Make a white sauce of the butter, flour, milk, and salt. Add the salmon (minced), with bones and skin removed. Remove from the fire and add the well-beaten egg yolks. Cool, and fold in the stiffly beaten whites. Pour into a buttered baking dish or into custard cups; set in a pan of hot water. Bake in a moderate oven for 20 minutes—a little longer when baked in a large dish.

(*Basis for 2 girls, ¼ rule.*)

6. Cheese Soufflé

(Recipe and method are given under Lesson 12.)

Domestic Science Principles and Application

SECOND YEAR

SECOND YEAR

LESSON 1

PRESERVATION OF FOOD—CANNING FRUITS

PRESERVATION as applied to food is the process of preventing decomposition, which is caused by the presence of bacteria.

Bacteria are single-celled forms of plant life so small as to be seen only by the aid of a powerful microscope. Although they are so tiny, they increase in number so rapidly where they have plenty of food, moisture, and warmth, that they are able to cause extensive changes, especially in foods.

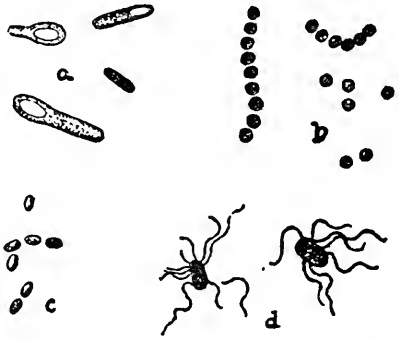

Fig. 29. Bacteria (greatly enlarged): *a*, rod-shaped, showing spores; *b*, spherical; *c*, typical lactic-acid bacteria; *d*, bacteria with hairlike appendages, with which they swim about in water or milk.

It is believed that there are as many kinds of bacteria as there are kinds of other plants, and they are found everywhere, in the dust of the air, in soil, water, and food.

During the absence of proper conditions for their growth they are inactive and often remain so for several months or years, but spring into life when brought again into the right conditions.

All bacteria, however, are not harmful, and some are of great use to us. Common products that owe their flavor largely to the work of bacteria are butter, cheese, and vinegar. The action of bacteria is very useful in the production of linen, hemp, liquors, and many other products.

If there were no such thing as decay, the surface of the earth would soon become loaded with useless vegetable and animal matter. Bacteria feed upon this material and reduce it finally to substances available to plants as food, and it again becomes living matter.

Reasons for Preserving Food.—People of no other age lived so well as the average live today. One great reason is the abundance and variety of food, made possible largely by methods of preservation. Advantages of food preservation are:—

1. To insure clean, wholesome food, free from bacteria.
2. To enable us to have food out of season.
3. To afford us economy by making it possible to purchase food when it is best and cheapest, rather than when it is scarce, expensive, and inferior in quality.
4. To permit of transportation from one part of the country to another or from one country to another. Thus we have the use of foods not grown at home.

METHODS OF PRESERVING FOOD

Food is preserved by producing conditions unfavorable to the growth of bacteria in it and which destroy their effects. This is accomplished (1) by applying either a high or low temperature, (2) by drying, (3) by adding preservatives.

Refrigeration is preservation by holding food at a low temperature. Freezing and cold storage are means of keeping food for long periods; cellars and ice boxes, for short periods.

Freezing or packing in dry snow or ice checks the growth of bacteria as long as the food is in a frozen condition. Food deteriorates quickly after thawing out, and should be used immediately. Meat and fish are most commonly frozen.

Cold storage, or keeping food in cold, dry storerooms artificially cooled to just above the freezing point, preserves food. Eggs, fruit, vegetables, butter, and meat are kept very extensively and for considerable periods in cold-storage plants. Cellars and ice boxes are cold-storage devices for homes.

Canning, or sealing sterilized food in air-tight sterilized jars, is a common household method of food preservation. Boiling for 20 minutes will generally kill most forms of bacteria. Fruits, vegetables, and meats are preserved by canning.

Removal of Moisture.—Bacteria require considerable moisture in a material in order to grow in it. *Drying* a food, therefore, preserves it from decay. Flour, crackers, cereals, and many other foods do not spoil because they are dry. Fish, fruits, berries, and beef are other familiar examples of this preserving principle. Dried foods must be kept in a dry place so as to prevent the absorption of sufficient moisture to give the germs of decay on or in them a chance to grow.

The excluding of air also aids in preserving some food products. This is accomplished in the case of eggs by coating with paraffin or vaseline or putting them in water glass; likewise grapes are packed in cork.

Preservatives.—Antiseptics are materials that do not kill bacteria but which retard or prevent their growth. Those used to preserve food should be harmless to the body. Common examples of these are:—

Sugar.—Bacteria cannot grow in a food containing a large proportion of sugar. Jelly, marmalade, and preserves keep well for this reason. Raisins, dates, figs, and candied fruits are other examples. Condensed milk is preserved by the addition of 30 or 40 per cent of sugar.

Salt.—Salt prevents bacterial growth in much the same way as sugar, and it also takes up moisture. Common foods salted are fat pork, beef, fish, hams, and bacon. Salt in butter and cheese makes them keep better.

Acids.—Acids protect food from bacteria and give new flavors. Vinegar (acetic acid) is used in making pickles, and lactic and acetic acids that develop in sauerkraut act as preservatives.

Spices are antiseptic and are another common means of preventing the action of bacteria on food. Spices are used in mincemeat for flavor and at the same time they help to preserve it. Sage and spice used in sausage and spice in fruit cake perform the same functions.

Smoke.—Meats and fish are often preserved and flavored by smoking, combined with the salting and drying that accompany the process. It must be remembered, however, that the smoke does not penetrate deeply into the flesh, but is merely a protective covering, so that any bacteria or parasites within are not killed. Smoked meat is unsafe to eat without thorough cooking.

Harmful Preservatives.—Other substances often used as preservatives are borax, boracic acid, salicylic acid and formalin. In small quantities these preservatives have been found to be quite harmless; yet their use in manufactured foods has been made illegal in many states, inasmuch as the amount a person may eat cannot be controlled.

Sterilization of anything is the process of destroying all germs and molds in or on it, and anything that has undergone this process and is free from life is sterilized.

CANNING

The Primary Principle in Canning.—The central point in canning is to sterilize by heat the food and everything

that comes in contact with it, and then to keep it sterile. Bacteria increase in number so amazingly fast that if a single germ withstands the heat or gets into the food after it has cooled, the contents of the jar will spoil in a few days. The jars must be sealed while hot, to insure that all enclosed air will be sterilized and to insure a perfect seal on cooling.

Most failures in canning are due to insufficient heat applied or to neglect in using utensils not freed from germs. Avoid the raising of dust in the room while canning is being done.

Jars for Canning.—There are many kinds of fruit jars on the market. The best jar is that which is strong and

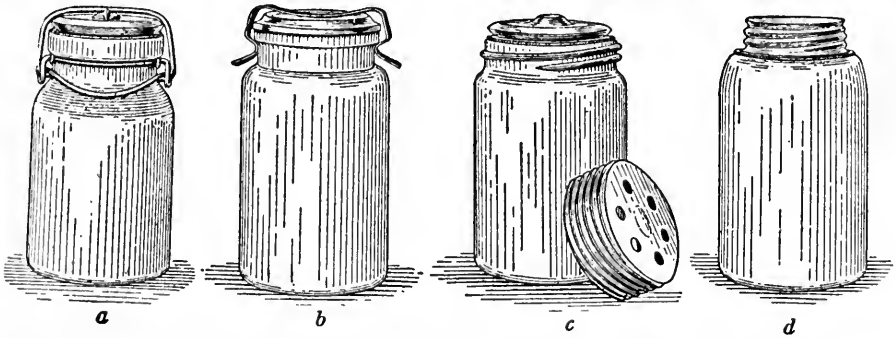

Fig. 30. Jars for canning: *a*, spring top; *b*, jar with metal lacquered top; *c*, improved Mason; *d*, Mason. (U. S. D. A. Bul.)

simple in construction, which has a wide mouth, and which protects the contained food against contact with metal. The type that seems to give the most general satisfaction has a glass cover clamped on with a spring device, as in Fig. 30. Use glass jars, never tin. Jars having a wide mouth are the best for large fruits, for it is easier to arrange the contents to better advantage.

Be sure the cans and tops are perfect and fit closely, to insure an air-tight seal. By fitting jars and tops together before putting in the fruit no time is lost in sealing.

To Sterilize Jars.—Wash the jars and tops and submerge them in a pan of cold water, jars full of water; bring slowly to a boil and boil 10 minutes. Do this just before filling.

Rubbers should not be boiled but should be dipped into boiling water just before putting them on the jars. Tops with the rubbers on them must be treated in the same way. These tops and all rubbers can safely be used but once.

Selection of Fruit.—Buy only fresh, firm fruit of good quality and not too ripe. Overripe fruit may contain some bacteria that will not be killed by boiling, causing fermentation after the fruit is set away. Buy fruit in season when prices are best.

Proportion of Sugar and Water for Sirup.—Use 3 quarts of sugar to 2 quarts of water. The various densities are gained by shorter or longer boiling.

Thin sirup is sugar and water boiled so that all the sugar is dissolved, but the sirup is not sticky.

Medium thin sirup is that which has begun to thicken and is sticky when cooled on the finger or spoon.

Medium thick sirup will pile up on the edge of the spoon when poured out.

General Methods of Canning Fruit. — There are two methods of canning fruit: (1) Cooking fruit in a sirup in a saucepan and then sealing in jars; (2) cooking by baking or steaming in the jars with a sirup. The latter method keeps the fruit whole and is especially suitable for berries.

Method 1. Cooking Fruit in a Sirup.—1. Boil the sugar and water together 5 or 10 minutes, making a thin sirup. Put in the fruit and cook until tender. Cooking a small amount at a time preserves the shape of the fruit.

2. When fruit is tender, set the empty jar from the boiling water into a pan containing a little hot water, or

on a wet, hot cloth. This keeps the jar hot and avoids the danger of its breaking.

3. Put a new sterilized rubber on the jar. Pack the fruit in carefully, arranging it to look well, and fill the jar to overflowing with the hot sirup. Put on the sterilized top and screw down tight.

4. See that no fruit around the edge prevents an air-tight seal. Set each jar upside down on a board away from any draft and let stand over night.

Fig. 31. Canned fruit, labeled and ready for storing.

5. On the following day wipe off the jars, see that each is perfectly sealed, and label. Store them in a dark closet. If any jar is not perfectly sealed, open it, boil the fruit, and recan as before.

Method 2. Cooking Fruit Whole in Jars.—Clean fruit and pack neatly and closely into the sterilized jars. Fill jars to the top with sirup made as in Method 1. Adjust tops and partially seal.

Baking.—Set the jars in a pan containing an inch or two of hot water. Set the pan with the jars in a hot oven and bake 20 or 30 minutes, or until hot all through and bubbles rise in the jars.

Cold-packing, or Steaming.—Set the filled jars on a rack in a boiler containing hot water to cover the jars. Cover

the boiler and when the water in the boiler begins to boil count the time and cook, or process, according to the time given in the table under application. At the end of the time remove the jars carefully, tighten the covers to make a perfect seal, and invert the jars for several hours to cool. Examine and seal before storing fruit away.

APPLICATION

1. Canned Peaches

Method.—Wipe peaches and put in boiling water, allowing them to stand just long enough to loosen the skins. Remove the skins and either cook fruit at once, that it may not discolor, or drop into cold water. Make a sirup in the proportion of 1 pint of sugar to 1 pint of water and bring to a boil in a preserving kettle. Put fruit in and cook 10 or 15 minutes or until tender. Bring to a full boil and then fill jars according to previous directions. The fruit may be cut in halves and a few of the stones put into the sirup for flavor.

One section of the class may can according to Method 1 and the other section may follow Method 2.

(*Basis for 2 girls, 1 can.*)

2. Canned Pears

Method.—Wash and pare the fruit. Cook whole with or without stems; or, remove stems, cut in quarters or halves, and core. Put at once into cold water. Make a sirup of 1 pint of sugar to 2 pints of water, bring to a boil, drain the pears and place in the sirup. Boil until tender. Place each piece separately in the jar with a fork; then cover brim full with the boiling sirup, and seal. Bartlett pears are best for canning.

(*Basis for 2 girls, 1 can.*)

3. Canned Plums

Method.—Wash the plums and prick them to prevent bursting. Add the plums to the sirup (1 cupful sugar to 2 cupfuls water), cook until tender, and can according to Method 1.

4. Canned Strawberries

Method.—Select highly-colored, clean berries. To 10 pounds of berries add 3 to 5 pounds of sugar. Place berries in a preserving kettle and mix in the sugar thoroughly. Allow them to stand 5 to 10 hours, until the juice begins to run into the sugar. Place the kettle and contents on the stove and bring to a boil. Simmer 15 minutes, keeping the berries beneath the sirup with a spoon and removing scum that rises. Place in jar and seal.

NOTE.—Blackberries and raspberries may be canned the same as strawberries. Use 2½ pounds of sugar for 10 pounds of berries. Berries may also be canned according to the baking or steaming method.

Time-Table for Canning Fruit by Cold-Pack, or Steaming, Method.

Fruit	Preparation	Time of Blanching	Kind of Sirup	Time of Cooking	
				Water-bath Outfit	Pressure Cooker
		Minutes		Minutes	Min. Lbs.
Apples	Peel, core, cut up	1—2	Medium	20—30	10—5
Apricots	Peel, core, cut up	1—2	Medium	16	10—5
Blackberries	Pick over, wash	——	Medium	16	6—5
Cherries	Wash, stem, pit	——	Med. thick	16	10—5
Fruit juices		——		20	10—5
Grapes, plums	Wash, stem	——	Med. thick	16	10—5
Huckleberries	Clean	——	Med. thick	16	8—5
Peaches	Blanch, peel, stone	1—2	Medium	16	10—5
Pears	Blanch, peel, core	1—2	Thin	20	10—5
Pineapples	Peel, slice	——	Thin	60	40—5
Quinces	Peel, core, cut up	1—2	Thin	60	40—5
Raspberries	Pick over	——	Thin	16	8—8
Strawberries	Pick over	——	Thin	16	10—5

LESSON 2

PRESERVATION OF FOOD—CANNING VEGETABLES

VEGETABLES, except tomatoes, are more difficult than fruit to can successfully, because they are harder to sterilize. They contain much hard cellulose fiber, requiring longer cooking, and the spores (seeds) of certain bacteria, which resist ordinary boiling, are also usually present.

Nevertheless peas, beans, asparagus, and corn may be easily canned in the school and the home if the correct method is followed.

Sterilizing by Intermittent Cooking.—As we have learned, some bacteria are able to form spores, which are like seeds, that are not killed by ordinary boiling. Soon after the food has cooled, these spores germinate, when they may be killed easily by heating. A second cooling and a third heating will render the vegetable or fruit absolutely sterile.

Selection and Preparation of Vegetables.—Select only sound, fresh, young and tender vegetables. If possible can vegetables on the day they are picked.

Pare, peel, or scrape, as the kind of vegetable requires. Remove all bruised or decayed parts.

If the vegetable is likely to discolor after being pared, cover with cold water until ready to use; if very large, cut into convenient size to can.

General Method of Canning Vegetables.—1. Pack the vegetables firmly into the jars to within half an inch of the top. Arrange in a manner to utilize the space well and to present a good appearance.

2. Add salt to the vegetables, allowing ½ to 1 teaspoonful to each quart. If sugar is desired, as in beets and peas, add 1 to 2 teaspoonfuls to each quart. Then fill jars to overflowing with clean, cold water.

3. Place the tops on the jars lightly, but do not seal. Place the jars on a wooden rack or other support in the bottom of a boiler.

4. Pour water into the boiler to a depth of 3 or more inches. Put on the cover and boil for 15 or 20 minutes.

5. Remove the boiler cover, seal the jars, cover again and boil for about 45 minutes; then set aside out of a draft in a warm room.

6. On the second day, return the jars to the boiler prepared as before and, without loosening the seals of the jars, bring the water to the boiling point and boil again about 60 minutes. Remove the jars and let stand as before.

7. On the third day, cook as on the previous day, 60 minutes. Then remove jars from the boiler, allow to cool, wipe off, label, and set away.

The Cold Pack, single period method of canning is now used largely by home and school canning clubs. The steps involved in the cold pack method are, (1) blanching, (2) cold dipping, (3) peeling, (4) packing and (5) processing. The blanching and cold dipping of the product takes the place of intermittent cooking.

Blanching is the process of plunging the food product into boiling water. This eliminates objectionable acids and reduces the large bulk of the food. Vegetables are more easily handled in a wire basket or cheese cloth square. Plunge the whole into the boiling water and allow to remain from one to three minutes or until the skins begin to loosen.

Cold dipping consists in putting the basket containing the vegetables directly from the boiling water into cold water. This hardens the pulp under the skin, makes the removal of the skins easier and brings the coloring matter to the surface.

Peeling the vegetables should then follow. This should be done with a sharp knife quickly and carefully and they should be packed immediately into sterilized jars. Fill the jars full of vegetables; add hot water to make the jar brim full; add salt in the proportion of one teaspoonful to a quart jar, and partially seal the jar.

Processing consists in sterilizing the jars of vegetables in a hot water bath outfit according to the time given in the table for each kind of vegetable. At the end of the time given for processing, remove the jars, complete the seal and cool quickly. Examine carefully before putting jars away to make sure the seal is tight and that the material canned is in perfect condition.

Hot water bath outfits can be made from any wash boiler, galvanized vat, large kettle or other vessel with an air tight cover by adding a false bottom with handles for removal of the jars.

Commercial outfits for the sterilization of food products consist of several kinds: (1) The hot water bath outfits, made for out-of-door use on a large scale; (2) water seal outfits, having an inner seal and jacket which maintains a higher temperature than the water bath; (3) steam pressure outfits made of steel, iron, or heavy tin. These carry from 5 to 30 pounds steam pressure and can be regulated to maintain different temperatures. (4) Aluminum pressure cookers made entirely of aluminum. These transmit heat quickly and carry 30 pounds of steam pressure. They are the most expensive, but are especially good for canning

smaller quantities at one time. Fruits, vegetables, meats, soups and stews can all be successfully preserved with little work with this cooker.

APPLICATION

Canning vegetables by both the intermittent and the cold pack methods according to the following tables.

CANNING VEGETABLES

INTERMITTENT METHOD

Vegetable	Preparation	Cook out of jars	Cook in jars with out cover	Cover and Cook		
				First day	Second day	Third day
Asparagus	Wash: grade to size	.....	15 min.	45 min.	60 min.	60 min.
Beans—string	String: wash thoroly.	15 min.	20 min.	60 min.	60 min.	60 min.
Beans—Lima	Wash	15 min.	15 min.	60 min.	60 min.	60 min.
Beets	Wash	15 min.	15 min.	45 min.	60 min.	60 min.
Carrots	Wash: scrape	15 min.	15 min.	45 min.	60 min.	60 min.
Corn	Cut grains off cob	20 min.	45 min.	50 min.	60 min.	60 min.
Peas	Select young: sort to size	15 min.	15 min.	45 min.	60 min.	60 min.
Tomatoes	Scald and peel	15 min.	15 min.	45 min.	60 min.	60 min.

COLD PACK METHOD

Vegetable	Preparation	Blanch	Time for Cooking					
			Water-bath outfit	Water seal	Steam pressure		Aluminum cooker	
		Min.	Min.	Min.	Min.	Lbs.	Min.	Lbs.
Asparagus	Clean: sort	3- 4	90	60	50	5	25	15
Beans—string	String: grade	3- 5	120	90	60	5	40	20
Beans—Lima	Clean: grade	3- 5	120	90	60	5	40	20
Beets	Grade: size: wash	3- 4	90	75	60	5	35	20
Carrots	Scrape	Cook ¾ done	90	75	60	5	35	20
Corn off cob	Husk: cot off cob	5-15	180	90	60	5	35	20
Corn on cob	Husk grade	5-15	180	90	60	5	35	20
Okra	Can on day picked	2- 5	120	90	60	5	40	20
Peas	Shell: sort to size	2- 5	120	90	60	5	40	20
Potatoes	Wash well	10	90	75	60	5	40	20
Rhubarb	Cut in 1 inch pieces	Pack in jars.		Fill with cold water.				
Soup mixtures	Fill cans	.....	120	75	60	5	40	20
Tomatoes	Grade: use no water							
	Pack cans full	1- 3	22	18	15	5	10	20
Turnips	Peel: cut in pieces	30	90	75	60	5	40	20

LESSON 3

PRESERVATION OF FOOD—MAKING JELLIES, MARMALADES, and CONSERVES

JELLIES, preserves, marmalades, and conserves are made by cooking fruit juice or entire fruit with an abundance of sugar, which acts as a preservative.

JELLIES

The ideal jelly is well colored, well flavored, transparent, tender, holds its shape when turned from the glass, and is not gummy or sticky.

Composition of Fruit Juice.—Fruit juice consists largely of water in which are dissolved small amounts of sugar, flavoring material, vegetable acids, and pectin.

Pectin is the essential substance for jelly-making. If this is not present in a fruit juice it is impossible to make jelly from it. Pectin is a carbohydrate similar to starch in its nature and, like starch, is dissolved in boiling water. It exists in small quantities in raw fruits, the amounts varying with different varieties. Cooking causes the pectin to take on water, which increases it in amount and gives it the jelly-making properties. Overripe fruits do not contain enough pectin to jell, for the ripening process changes it to a form of sugar. Fruit not quite ripe is usually best.

Test for Pectin.—Add two tablespoonfuls of alcohol to the same amount of hot fruit juice. If the mixture becomes thick, like gelatin, pectin is present.

Fruits rich in pectin are currant, grape, apple, plum, raspberry, blackberry, cranberry, quince, pear, and peach. The white skin of the orange and grapefruit also contain it.

Vegetable acids are also necessary in fruit juices for jelly-making, and give flavor to the jelly. Many fruits are deficient in acid; for example, quince, peaches, sweet apples, and pears. In order to make good jelly from these juices, sour apple juice or some fruit juice rich in acid should be used as a basis. Combining fruit juices in this way supplies both pectin and acid where they are deficient, and many pleasing flavors and combinations may be made with a little care and practice.

Utensils for Jelly-Making.—Use a granite or porcelain kettle; a large wooden or enamel spoon for stirring; a pointed bag made of Canton flannel, cheesecloth, or old damask through which to strain the jelly; an enamel pitcher or cup for filling glasses; sterilized jelly glasses; and a silver spoon for testing the jelly.

Extracting Fruit Juices.—1. Select sound fruit that is not overripe. Pick over, wash until thoroughly clean and free from sand and dirt. Cut up large fruits.

2. Put in the preserving kettle and if the fruit is very juicy add just enough water to prevent burning, about 1 cup to every 4 quarts of fruit. If the fruit is not juicy, add water to nearly cover the fruit.

3. Cover the kettle and cook slowly, stirring occasionally. When it simmers, crush the fruit with a potato masher; cook until the fruit is thoroughly cooked and the juices run freely.

4. Dip the jelly bag into boiling water to sterilize it and wring out quite dry. Suspend the jelly bag on a pole over a bowl or jar, pour in the hot fruit, and let drain until all the juice is well extracted. This usually takes from 12 to 20 hours. Do not squeeze the bag, for this will force out pulp and make the jelly cloudy.

5. When well drained, return the pulp to the preserving kettle, cover with water, stir until well mixed, cover and bring slowly to a boil as before; then drain again into another jar. By testing the juice with alcohol the amount of pectin present may be ascertained.

6. Sometimes a third extraction of juice is possible. Do not mix the juice from the first cooking with that of the second or third.

Proportion of Fruit Juice and Sugar.—A correct proportion of sugar to juice is necessary; not enough sugar makes a tough jelly, and too much produces a soft jelly and may form crystals. For most juices rich in pectin and acid, 1 cup of sugar to 1 cup of juice is used; currants and grapes demand this proportion.

Some fruits; as, crab apple, sour apples, cranberries, and raspberries, require less sugar, and the proportion of ¾ cup of sugar to 1 cup of juice is usually correct.

If fruits contain a large amount of water and the pectin test shows a small amount of pectin, use less sugar. For the second and third extractions, which contain more water than the first, the juice should be boiled down quickly until the pectin test shows up clear, when the usual proportion of sugar may be used. This jelly should be as clear as that from the first extraction.

Making the Jelly.—Measure out the sugar into a granite pan and put into the oven to heat. Leave the oven door open and stir the sugar occasionally to prevent burning.

Pour the fruit juice into the preserving kettle and bring to a boil. Too long boiling destroys the gelatinizing power of the pectin and may also cause crystals of sugar to form in the jelly after it stands. The time necessary for boiling varies with the proportionate amounts of sugar and pectin

in the juice. Where much sugar is used, less time is taken, and thin juice deficient in pectin requires longer cooking.

Remove carefully all the scum that rises to the top of the boiling juice and from around the edges of the kettle.

After the juice has boiled 10 to 12 minutes add the hot sugar slowly, stir occasionally to prevent burning, and continue the boiling until the test shows sufficient cooking to "jell" the mixture.

Test for Jelly—Take up a small amount of the hot mixture in a cold, silver tablespoon and drop it from the spoon. If the mixture "jells" and breaks from the spoon, it has been cooked enough. Remove from the fire at once.

Filling Glasses.—Sterilize jelly glasses in the same manner as fruit jars, and when the jelly is ready set the glasses in a pan containing a little hot water, to keep them from breaking when the hot jelly is poured in. With a cup or pitcher fill each glass to within a half inch of the top.

Fig. 32. Jelly, properly sealed and labeled.

Let the jelly stand in a sunny place several hours to set. Then, to exclude molds, cover with hot paraffin, with circles of white paper cut to fit the glasses and dipped in slightly beaten egg white and water or alcohol, or with hot tin covers. Wipe off the glasses with a damp cloth, label each, indicating the kind of jelly and the date, and set away in a cool, dry place.

Causes of Poor Jelly.—Failure may be due to one or more of a number of causes, which must be discovered by tests.

The following are the important causes:—

1. Fruit juice contained too little pectin or not enough acid.

2. Too much or too little sugar may have been used. The error is usually on the side of too much.

3. The jelly may have been boiled too long or not enough.

PRESERVES, JAMS, AND MARMALADE

Preserves, jam, and marmalade are made from the fruit pulp and juice cooked thick with from ¾ to its whole weight of sugar.

Fruits most used are strawberries, raspberries, blackberries, rhubarb, grapes, oranges, peaches, and quince or big plums.

A conserve is a preserve made from a mixture of fruits with or without the addition of some other material, such as nuts.

General Method.—1. Pick over the fruit, wash and weigh. Cut large fruit into quarters or smaller pieces and crush the berries and grapes. Put in a preserving kettle with enough water to keep from burning,—about ¼ cup to each quart of fruit. Cook slowly until the fruit is soft and the juices run.

2. Remove the seeds from grapes and some berries by rubbing the mixture through a sieve; then return to the fire and add an equal weight of hot sugar slowly. Stir the mixture constantly to prevent burning, and cook until it "jells" on the spoon or becomes thick.

3. Turn out into hot sterilized glasses, let stand a day or two, and then seal and put away the same as jelly.

APPLICATION

1. Currant Jelly

Method.—Pick over the currants, but do not remove the stems; wash and drain. Mash a few in the bottom of a preserving kettle, using a potato-masher. Add more currants and mash and continue adding currants until all are used. Bring to a boil slowly and let simmer until the currants appear white. Strain through a coarse strainer and allow the juice to drain through a jelly bag. Measure the juice, bring to the boiling point and boil 5 minutes. Add an equal measure of heated sugar and boil until a good jelly test is obtained; then pour into glasses.

(*Basis for* 4 *girls,* ¾ *cupful juice.*)

2. Apple Jelly

Method.—Wash the apples and remove the stems and the dark spots. Cut into fourths, but do not core or pare. Add just enough water to cover the apples and cook until the fruit is soft and crushed. Drain through a jelly bag. The pulp that remains may be put through a colander with more fruit for flavoring and used for jams. For the jelly, measure the juice and add an equal amount of sugar. Boil the juice for 20 minutes (for a large amount), remove the scum, and add the heated sugar. Boil about 5 minutes or until the jelly test shows the mixture will jelly. Pour into hot sterilized glasses and seal when cold.

(*Basis for* 4 *girls,* ¾ *cupful juice.*)

3. Orange Marmalade

9 oranges
6 lemons
4 qts. water
Same weight of sugar as fruit

Method.—Slice as thin as possible the oranges and the lemons crosswise with a sharp knife; remove the seeds and put fruit into a preserving kettle with the water. Cover and let stand for 36 hours and then boil for 2 hours. Meas-

ure the cooked fruit and add an equal amount of sugar. Cook until the mixture jellies. Jar, and seal when cold.

4. Big Plum Conserve

1 basket big plums
Sugar, ⅔ weight of plums
3 oranges, rind of one
¾ lb. shredded almonds

Method.—Cut the plums into halves and remove the stones. Cook the plums, oranges, and the sugar for 45 minutes. Blanch the almonds and cut them several times lengthwise. Add the almonds to the fruit mixture and cook 10 minutes longer. Put into sterile glasses and seal when cold like jelly. This amount makes 13 glasses.

5. Spiced Grapes

7 lbs. fruit
1 c. strong vinegar
1 c. grape juice
3½ lbs. sugar
2 oz. cinnamon
1 oz. cloves

Method.—Press pulp out of grapes. Boil the pulp until tender and then pass it through a colander to remove the seeds. Mix the skins with the pulp. Boil all until thick like marmalade. When done turn into glasses and seal. Good to serve with meats.

6. Raspberry Jam

3 qts. raspberries
1 qt. currant juice
3 lbs. sugar

Method.—Cook berries with the juice and half of the sugar 20 minutes. Add the rest of the sugar and cook about 25 minutes longer. Stir constantly to keep from burning. Put in jelly glasses and seal when cold. Adding the sugar slowly prevents the fruit from getting hard.

7. Plum and Apple Jelly

Method.—Use equal parts of plum and apple juice.

8. Quince and Apple

Method.—Use ¼ as much quince as apple juice.

9. Apple and Raspberry

Method.—Flavor apple jelly with raspberry by using ⅛ as much raspberry as apple juice.

10. Grape Fudge

7 lbs. grapes	7 lbs. sugar
1 lb. walnuts	1 lb. raisins

Method.—Wash the grapes and remove the pulp. Cook the pulp and remove the seeds by putting through a sieve. Chop skins and nuts, mix pulp and sugar, add the chopped portions and whole raisins. Cook until thick and seal in sterilized glasses. This amount makes 22 glasses.

LESSON 4

PRESERVATION OF FOOD—PICKLING. CONDIMENTS AND SPICES

PICKLES are eaten largely for their pleasing flavor, and are to be classed as condiments rather than as true food.

Condiments and Spices.—Whatever is eaten to whet the appetite and stimulate the flow of digestive juices is known as a condiment. Horseradish and mustard are good examples. Condiments are for the most part aromatic fruits, seeds, or leaves that have a high flavor due to volatile oils. These oils lose their strength during cooking. Besides the two named, pepper (black, white, cayenne), mint, thyme, sage, dill, capers, chives, garlic and parsley are those usually added to meats and soups.

Spices are condimental in nature and are used to season foods, especially those containing sugar. Common spices are ginger, cinnamon, nutmeg, mace, cloves, allspice, caraway, pepper, peppermint, and angelica. They are used whole, ground, or in the extract.

It is much better for young persons, as well as for older ones, if they eat sparingly of highly-seasoned food. The continued use of condiments creates a habit for them and leaves no relish for natural flavors, which are more delicate and more satisfying.

Salt is a food, since a certain amount is needed in the formation of gastric juice. In the amounts in which it is commonly eaten, however, it is a condiment. In concentrated solutions it becomes a preservative.

Vinegar is a condiment in the diet and is a familiar preservative. It is dilute acetic acid, made by fermenting

weak alcoholic solutions like hard cider, wine, and malt. Cider vinegar has an agreeable flavor and is the best for pickling.

Pickling is preserving in acid and brine. Vinegar and salt are used with spices and herbs which give flavor and at the same time are preservative.

Kinds of Pickles.—There are many varieties of pickles, but in the main they may be classed as sweet, sour, dill, or a combination of sweet and sour. Pickles have little food value and are rather hard of digestion, but used in moderation as a relish with a dinner are appetizing and help stimulate the digestion.

Materials for Pickles.—Cucumbers, green tomatoes, watermelon rind, apples, crab apples, peaches, and pears make the best pickles. Use only the purest spices and the best cider vinegar. Whole spices are better to use than ground spices. If ground spices are used, tie them in a tiny muslin bag.

General Rules for Pickling.—1. Never use brass, copper, or tin utensils in making pickles.

2. Clean the pickles thoroughly by washing in several waters, remove all stem ends and sort according to size.

3. A small portion of alum improves cucumber pickles, but too much is injurious.

4. Do not boil the vinegar too long,—not over 10 to 15 minutes,—for it loses its strength.

5. Keep the pickles covered with vinegar in good, clean glass or stone jars. A few pieces of horseradish added prevent scum from forming on the surface of the vinegar.

6. If cucumbers are soaked in a brine overnight before pickling they will be firmer, have more of the salt taste,

and will keep better. A brine made of about ½ cupful of salt to a quart of water is the proportion most commonly used.

Sweet Pickle for Fruits

2¼ c. brown sugar
1 c. vinegar (medium sour)
1 tsp. whole cloves
¼ oz. cinnamon

Method.—Cook the sugar, vinegar, and spices together for about 15 to 20 minutes. Put in the fruit and cook until it begins to get tender. Remove from the fire and put into a large jar. The next day pour off the vinegar, reheat it, and pour again over the fruit. Do this several successive days until the fruit is tender. Weight down a plate on top of the pickles to hold them under the vinegar.

Sweet Pickle for Vegetables

2 lbs. sugar to 2 qts. of vinegar (medium sour)
2 tbsp. of cinnamon or stick cinnamon
2 tbsp. of cloves
2 tbsp. ginger or allspice
½ lb. mustard seed
½ tbsp. red pepper

Method.—Cook pickle ingredients together until somewhat boiled down, and pour over the vegetables. Reheat the pickle 3 or 4 successive mornings and return to the vegetables.

APPLICATION

1. Pickled Green Tomato

Method.—Wash and stem small green tomatoes and slice in ½-inch slices. Cook in slightly salted water, (allow 1 teaspoonful of salt to a quart of water). Cook until tender, being careful not to mash the slices. Drain and put immediately into cold water to make crisp. Let stand an hour. Make a hot pickle as for vegetables and pour over the tomatoes on 3 successive days. If one desires a few slices of onion may be added to the tomatoes.

2. Sweet Pickles—Peach

½ peck peaches
1 pt. vinegar
2 lbs. brown sugar
1 oz. stick cinnamon

Method.—Make a pickle of sugar, vinegar, and cinnamon. Scald the peaches or remove the wool by rubbing with a towel. Do not stick cloves into them. If very ripe, pour the hot sirup over them on 3 successive mornings. If hard, cook a few minutes in the hot pickle; then pour on the hot pickle on 2 successive days.

2. Sweet Pickled Pears

Method.—Select sound fruit not too ripe, and pare and leave whole with stems on. Cook until tender and pour the hot pickle over them several successive mornings. Use same pickle as for peaches.

3. Watermelon Pickles

Method.—Cut the pared rind in thick slices. Boil 1 ounce of alum in 1 gallon of water and pour it on the rinds; let stand several hours. Remove rinds into cold water and when cold boil half an hour in a sweet pickle. Reheat the pickle vinegar and pour over pickles on 2 successive mornings. Keep in stone jars.

4. Cucumber Pickles

1 gal. vinegar
1 c. sugar
1 c. salt
1 c. mustard
4 qts. small cucumbers

Method.—Mix salt, sugar, and mustard together; then add the vinegar slowly, stirring well. Wash and look over the cucumbers, and put into a stone jar. Pour on the pickle brine, let stand weighed down with a plate to keep pickles under the brine. These pickles are ready for use in a week's time. The brine is *not* heated.

5. Oil Pickles

50 medium-sized cucumbers
1 c. onions (sliced)
1 c. salt
1 c. white mustard seed
½ c. black mustard seed
1 tbsp. celery salt
1½ c. olive oil
2 qts. vinegar
1 tbsp. alum

Method.—Wash cucumbers, cut off both ends, and slice thin without peeling. Peel the onions and slice them thin. Put cucumbers and onions in a crock in layers covered with salt and let stand over night. In the morning, drain, mix the powdered alum in 1 quart of vinegar and pour over the pickles and let stand 4 hours; drain again. Mix seeds through pickles; then pack all in a jar and cover with oil mixed well with 1 quart of fresh vinegar. Place a weight on top and let stand 3 weeks before using.

6. Bordeaux Sauce

1 qt. chopped green tomatoes
2 qts. sliced cabbage
3 onions
1 red pepper
2 tbsp. salt
1 qt. vinegar
½ tsp. allspice
¾ tbsp. mustard seed
1 c. brown sugar

Method.—Mix all the ingredients together and boil for 25 minutes. Seal in small jars and use with meats as a relish.

7. Tomato Catsup

½ bushel ripe tomatoes
3 bay leaves
1 lemon
1 tsp. black pepper
2 tsp. mustard
1 tsp. white pepper
3 onions
1 tsp. red pepper
1 sc. c. salt
¾ pt. vinegar

Method.—Wash the tomatoes thoroughly and cut in pieces; cook with the bay leaves, lemon, white pepper, and onions about 2 hours. Strain through a colander to remove the skins. Mix the remainder of the spices and stir into the strained portion, add the salt and the vinegar, stir until well mixed, return to the large kettle, and cook slowly till the mixture thickens and is cooked down about one-half. Put in small sterilized bottles, seal, and keep in a cool, dark place.

LESSON 5

DOUGHS—COOKIES

REVIEW proportions for doughs.

Review recipes for baking powder biscuit and muffin mixtures. Notice the proportion of ingredients. Compare with a plain cookie or a cake recipe. What ingredients are found in much larger amounts in cookies and cakes?

General proportions of ingredients for cookie mixtures:

⅓ to ½ as much butter as sugar

About ⅓ as much liquid as flour. (Regard eggs as so much liquid.)

To combine sugar and butter in cookies or cakes, work the butter with a wooden spoon or silver fork until soft and creamy. This is called "creaming" the butter. The particles are separated and air is introduced, which helps to make the mixture light. Add the sugar, and work until sugar is moist and creamy.

Variations in Cookie Mixtures.—A plain cookie mixture may be varied greatly by the use of different flavors, flour (bread, graham, or oatmeal), or spices; by varying the quantity of eggs, butter or lard, nuts or cocoanut; by cutting in fancy shapes; and by icing or cooling.

Cookies are crisp or soft, depending on the amount of liquid used. More liquid makes softer cookies; less liquid and rolling thin make crisp cookies.

APPLICATION

Demonstrate rolling and cutting cookies.

1. Sugar Cookies

1 c. sugar
½ c. butter
1 egg
¼ c. milk
2 c. flour
½ tsp. salt
3 tsp. baking powder
1 tsp. vanilla

Method.—Cream the butter, add the sugar gradually, and cream well with a wooden spoon. Sift the salt and baking powder with the flour. Add the milk gradually to the sugar mixture, then the well beaten egg, then the vanilla, then the flour gradually to make a soft dough. Turn out on a floured board and roll a small portion at a time to ¼ inch thickness. Cut with a floured cookie cutter, place on buttered pan and bake in a hot oven until slightly brown (about 10 minutes). Makes 4 dozen cookies.

(*Basis for 2 girls, ¼ rule.*)

2. Sour Milk Cookies

1 c. sugar	½ tsp. soda
½ c. butter	½ tsp. salt
2 eggs	2 tsp. nutmeg
½ c. sour milk or cream	About 2 c. flour, or as little as possible

Method.—Cream the butter, add the sugar, and cream again. Add the well-beaten egg and then the sour milk. Mix and thoroughly sift the soda, nutmeg, salt and flour, and add gradually to the mixture. Use as little flour as possible, the softer the dough the better. Roll out, cut, and bake as other cookies. Makes 4 dozen cookies.

(*Basis for 2 girls, ¼ rule.*)

3. Norwegian Cookies

2¾ c. flour	¼ c. sweet milk
½ c. shortening (half butter, half lard)	2 tsp. baking powder
1 c. sugar	1 tsp. vanilla
1 egg	½ tsp. salt

Method.—Beat the egg thoroughly, add the sugar, and beat hard. Add milk to the egg mixture; beat hard. Sift the baking powder with the flour and rub the cold shortening into the flour with the hands until it is fine like meal; then add the flour, a cupful at a time, to the wet mixture. Make a soft dough and set it in the ice box until quite cold. Roll out a small portion at a time, very thin, ⅛ inch thick;

cut and bake in a quick oven 4 or 5 minutes. Makes 6 dozen cookies.

4. Ginger Snaps

½ c. shortening
1 c. molasses
3¼ c. flour
1 tsp. salt
½ tsp. soda
1 tbsp. ginger
½ c. sugar

Method.—Heat the molasses to boiling point; then add the shortening, which may be butter or half butter and half lard. Mix and sift the dry ingredients and add to the wet. Mix well and chill. Divide the mixture, turn upon a floured board, part at a time, and roll very thin. Use little or no flour in rolling. Cut and bake on buttered baking sheets in a quick oven. Reserve a part of the flour, for all may not be needed. Makes 5 dozen cookies.

(*Basis for 2 girls, ¼ rule.*)

5. Filled Cookies

2 c. oatmeal ground fine
2 c. flour
1 c. sugar
1 c. shortening
½ c. thick sour milk
½ tsp. soda
½ tsp. salt

Sweet milk may be used instead of sour. Omit the soda and add 3 tsp. of baking powder.

Filling

1 c. sugar
1 c. water
1 pkg. dates

Method.—Mix and roll out thinly on a floured board. Cut with a cookie cutter and bake 10 to 12 minutes. Stone the dates and put them through a food chopper. Cook with water and sugar for filling until it thickens. Place a spoonful between two cookies and press firmly together.

6. Chocolate Cookies

Method.—Add 3 tablespoonfuls melted chocolate to rule for Sugar Cookies.

LESSON 6

DROP BATTERS—COOKIES

REVIEW proportions for doughs and batters. Review oven tests for temperature.

Time for baking cookies is 10 to 15 minutes.

APPLICATION

1. Chocolate Cookies

1 c. sugar
2 eggs
½ c. milk
1 c. raisins and nuts
½ c. melted butter
1 even tsp. soda
2 c. flour
3 square chocolate
1 tsp. vanilla

Method.—Mix the melted butter with the sugar. Add the beaten yolks and melted chocolate to this. Add soda to the milk and then add the milk and ½ the flour to the sugar and eggs. Mix well. Add the raisins with the remainder of the flour. Add beaten whites and vanilla and beat well. Drop from the spoon to bake on buttered baking sheets. May be frosted with fudge frosting.

(*Basis for 2 girls, ¼ rule.*)

2. Rocks

1½ c. brown sugar
3 eggs
1 tsp. cinnamon
2 c. raisins
1 c. butter
¼ tsp. cloves
3 c. flour
1½ c. English walnuts
1 tsp. soda

Method.—Cream butter and sugar well. Add the beaten yolks to this; mix spices and soda with the flour and add to the sugar mixture. Flour fruit and nuts and add to mixture. Add the beaten whites and mix well. Drop from spoon and bake 10 minutes. Makes 3 dozen.

(*Basis for 2 girls, ¼ rule.*)

3. Peanut Cookies

½ c. sugar
1 egg
1 tsp. baking powder
¼ tsp. salt
3 tbsp. butter
1 c. flour
½ c. chopped nuts
½ tsp. lemon juice

Method.—Cream butter well with sugar. Add salt and baking powder to the flour. Add the beaten yolk to the butter and sugar. Then add the flour and nuts. Fold in white of egg, add the lemon juice, and mix stiff enough to drop on greased paper. Bake in a hot oven. Makes 2 dozen cookies.

(*Basis for 2 girls, ¼ rule.*)

4. Brownies

⅓ c. butter
⅓ c. molasses
⅞ c. flour
⅓ c. powdered sugar
1 egg
1 c. pecan meats

Method.—Cream butter with sugar, add molasses, add the beaten yolk of egg, and beat well; mix nuts with the flour and then add to the rest. Add beaten white of egg. Bake in fancy cake pans. Put nut meats on top of each.

(*Basis for 2 girls, ¼ rule.*)

5. Oatmeal Cookies

½ c. butter
1 c. sugar
2 eggs
2 c. flour
2 c. oatmeal
4 tbsp. milk
1 tsp. soda
1 tsp. cinnamon
½ tsp. cloves
1 c. chopped raisins

Method.—Cream the butter, add the sugar, and cream together well. Put the soda into the milk, put the eggs into the sugar mixture one at a time, beat hard; add the milk, then the flour, oatmeal, cinnamon, cloves, and floured raisins. Drop by spoonfuls on a greased pan and bake 15 or 20 minutes.

LESSON 7

FATS AND OILS. FRYING UNCOOKED MIXTURES

Definition.—An oil is a fat that is liquid at ordinary temperatures. Fats that are ordinarily solid become liquid in the presence of heat. Oils become solid at low temperatures

Sources.—Fat and oils used in cooking are obtained from animals and vegetables. Examples of *animal fats* are cream and butter, meat fat (suet, marrow, and drippings), lard, tallow, and fish oil.

Examples of *vegetable oils* are olive oil, cottonseed oil, cocoanut oil and oils from other nuts.

Food Value.—Fats and oils are one of the main food principles, and serve the body in the following ways: (1) By supplying heat and energy, (2) by building up the fatty tissue, (3) by acting as a lubricant.

To Try Out Fat.—Beef drippings, leaf lard, etc., must be tried out, or freed from the connective tissue, before they can be used for frying. To do this, cut up the fat fine, put into a pan with enough water to cover, and set it in the oven. Let it simmer several hours. When the fat is melted and free from water, strain through cheesecloth and cool. Try out leaf lard in a double boiler; strain, and cool.

To Clarify Fat.—Fat used in frying takes up water, solid substances, and flavors that should be removed before the fat is used again. To clarify fat, melt it and add a few slices of raw potato. Heat gradually and allow to simmer, which evaporates the water. When it ceases to bubble and

the potato is well browned, strain through a cloth over a strainer into a lard-pail or jar. The potato takes up odors, and the solid substances are strained out.

New fat should be used for batter and dough mixtures, potatoes, and fish balls. After these, fry fish, meat, and croquettes.

Frying is cooking in deep fat. Fats used for frying are olive oil (very expensive), cottolene, beef or bacon drippings, or a combination of two-thirds lard and one-third beef suet. The combination gives better results than all lard.

Fig. 33. Doughnuts.

Tests for Frying Temperature.—To prevent absorption of fat by foods when fried, the fat must be hot enough to form a crust over the food as soon as put in. The fat is never hot enough until it ceases to bubble. Then test by dropping in an inch cube of bread cut from the middle of a slice.

For *cooked mixtures*, like croquettes or fish and oysters, the bread should turn a golden brown in 40 seconds.

For *uncooked mixtures*, like fritters and doughnuts, the bread should turn a golden brown in 60 seconds.

Cautions in Frying.—1. Do not let fat get so hot as to smoke badly.

2. Do not fry too large a quantity at one time, for it lowers the temperature of the fat.

3. Drain all fried foods on soft paper to absorb the fat.

4. Use egg and crumbs to cover mixtures that are likely to absorb too much fat. Why eggs?

APPLICATION

1. Doughnuts (sour milk)

2 eggs	1 qt. flour
1 c. sugar	1 c. sour milk*
1 tsp. soda	1 tsp. salt
1 tbsp. melted butter	2 tsps. baking powder
½ tsp. cinnamon	Season with vanilla or nutmeg

Method.—Put the flour, cinnamon, baking powder*, and sugar into a bowl. Dissolve the soda in 1 tablespoonful of hot water. Add to the sour milk and then add the melted lard. Beat the eggs until light and add to the milk. Add the wet ingredients to the dry. Roll out to ¼ inch thickness, cut, and fry in deep fat. Do not put in more than five doughnuts at a time or the fat will be cooled too greatly. Let the fat reheat between fryings. Turn the doughnuts while frying; drain on plain paper. Makes 3 dozen doughnuts.

(*Basis for 2 girls, ¼ rule.*)

2. Chocolate Doughnuts

Method.—Chocolate doughnuts are made by adding 4 teaspoonfuls of chocolate to the preceding rule.

*If sweet milk is used, use 4 teaspoonfuls of baking powder and omit soda.

3. Potato Doughnuts

1 c. mashed potatoes	½ c. sweet milk
1½ c. sugar	2 eggs
2 tbsp. melted butter	3 c. flour
3 tsp. baking powder	Nutmeg grating
½ tsp. salt	½ tsp. cinnamon

Method.—Beat the eggs and add the sugar. Mash the potatoes and put them through a strainer; add the butter and milk and put through the strainer again. Add eggs and sugar, and then the flour to which has been added the baking powder and a pinch of salt. Roll out to ¼ inch thick, cut, and fry as other doughnuts. Makes 3 dozen.

(*Basis for 2 girls, ¼ rule.*)

4. Corn Fritters

1 can corn	½ c. flour
1 tsp. baking powder	2 tsp. salt
¼ tsp. paprika	2 eggs

Method.—Chop the corn; add dry ingredients mixed and sifted well. Then add the beaten yolks of eggs and fold in beaten whites. Fry by spoonfuls in fresh hot lard; drain on a paper.

(*Basis for 2 girls, ¼ rule.*)

5. Corn Oysters

1 c. corn	1 egg
¼ c. flour	Salt and pepper

Method.—Cut raw corn from cobs to which add the egg well beaten. Mix flour and seasoning with this; drop by the spoonful in deep fat, or cook on a hot, well-greased griddle. They should be made about the size of large oysters. Makes 2 dozen oysters.

6. Fritter Batter

2 eggs	2 tbsp. of melted butter
1 c. flour	½ c. cold water
1 ssp. salt	1 tsp. sugar, if for sweet fritters

Method.—Stir salt in egg yolk, add butter slowly, then sugar, and when well mixed stir in the flour slowly. Then

add the water a little at a time. Beat well, set aside for 2 hours, then stir in beaten whites of eggs. Batter must be thick. If not soft enough, add white of another egg.

(*Basis for 2 girls, ½ rule.*)

NOTE.—Oranges, bananas, prunes, apples, and clams or oysters may be used with this batter.

Fruit.—Cut fruit in quarters, roll in powdered sugar, and dip in batter before sugar has time to dissolve. Fry like doughnuts. Roll in powdered sugar just before serving. Serve hot.

For Clams or Oysters.—Use 1 tablespoonful of lemon juice or vinegar and use liquor of clam or oyster instead of water in the batter.

7. Swedish Timbales

¾ c. flour (about)
½ tsp. salt
1 tsp. sugar
½ c. milk
1 egg
1 tbsp. olive oil

Method.—Beat the egg thoroughly and add the milk and olive oil. Sift the dry ingredients together, add the wet to the dry; beat until smooth.

Frying.—Heat the fat as for doughnuts; use a deep dish and hold the iron in the hot fat until thoroughly heated through. Dip the hot iron into the batter to within a fourth of an inch of the top. Place immediately into the

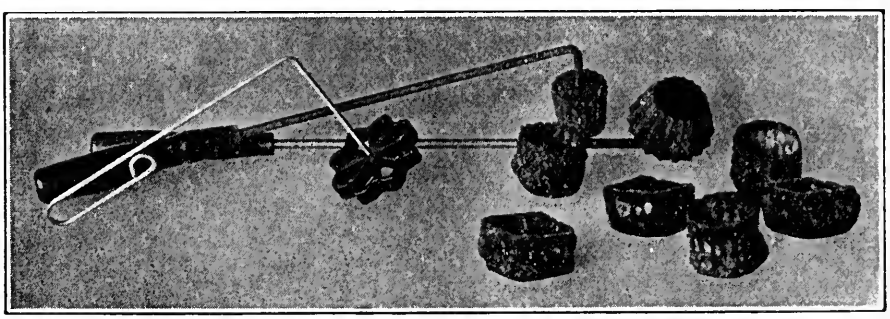

Fig. 34. **Timbale** cases and irons, and rosette iron.

hot fat deep enough to cover the iron. If the iron is *too hot*, the batter will slip off into the lard. If *too cool*, the batter will stick to the iron. Fry to a delicate brown, and drain on plain paper. Use for creamed peas, mushrooms, and finely cut salmon or chicken. Makes 3 dozen timbales.

(*Basis for 2 girls, ⅓ rule.*)

8. Swedish Rosettes

1 c. milk	4 eggs
2 tsp. sugar	1 tsp. vanilla
Pinch of salt	1½ c. flour

Powdered sugar

Method.—Make a well in the flour in a bowl and add the milk gradually. Beat well, drop in the whole eggs one at a time, and beat hard with a Dover beater. When full of bubbles add the vanilla. Fry in deep fat on a rosette iron until a light brown. Move the iron up and down in the fat carefully to loosen the rosette from the iron and finish the frying off the iron. Turn the rosettes like doughnuts while frying. Several may be fried in the kettle at the same time. Serve with powdered sugar or with fresh berries and whipped cream. Makes about 4 dozen rosettes.

LESSON 8

FRYING COOKED MIXTURES

CROQUETTES are mixtures of meat, fish, or vegetables with a thick white sauce for a binding. The whole is rolled in egg and crumbs and fried in deep fat. Left-overs of meat, vegetables, or fish are easily and daintily used in this way.

General Proportions.—Use about ½ as much thick white sauce as meat or vegetables.

General Method.—Break up meat, fish, or vegetables to be used and mix with the thick white sauce. Cool the mixture and then form into shape. Croquettes may be in the form of balls, nests, cones, or cylinders. About 2 tablespoonfuls of the mixture make the right size. Use fine bread crumbs, rolled and sifted. Roll the croquettes in

Fig. 35. Croquettes, various shapes.

the crumbs; then in a slightly beaten egg, to which has been added about 2 tablespoonfuls of water; then roll again in the crumbs. Fry in hot fat until a nice brown, drain on soft paper, and garnish with parsley or jelly.

APPLICATION

1. Potato Croquettes

2 c. hot riced potatoes
2 tbsp. butter
⅛ tsp. pepper
Yolk of 1 egg
1 tsp. parsley chopped fine
½ tsp. salt
¼ tsp. celery salt
A few grains of cayenne
Few drops onion juice

Method.—Mix ingredients in order given and beat thoroughly; shape, dip into crumbs, into egg, and then in crumbs again. Fry 1 minute in deep fat and drain on brown paper.

(*Basis for 2 girls, ¼ rule.*)

2. Meat Croquettes

2 c. chopped meat
⅛ tsp. pepper
A few drops onion juice
½ tsp. salt
A few grains cayenne
Yolk of 1 egg
1 c. thick white sauce made of white soup stock instead of milk

Method.—Mix ingredients in order given, cool, shape, dip into crumbs, into egg, roll again in crumbs, and fry the same as other croquettes.

(*Basis for 2 girls, ¼ rule.*)

3. Chicken Croquettes

1¾ c. chopped cold fowl
¼ tsp. celery salt
1 tsp. lemon juice
1 tsp. parsley chopped fine
¼ c. thick white sauce
½ tsp. salt
A few grains pepper
A few drops onion juice

Method.—Mix ingredients in order given; cool, shape, crumb, and fry. Garnish with a sprig of parsley on top.

(*Basis for 2 girls, ¼ rule.*)

4. Salmon Croquettes

1¾ c. salmon (flaked)
A few grains pepper
¼ c. thick white sauce
1 tsp. lemon juice
Salt

Method.—Add sauce to salmon, add seasonings, spread on a plate to cool, shape, dip into crumbs, into eggs, and then into crumbs, and fry in deep fat.

(*Basis for 2 girls, ¼ rule.*)

5. Rice Croquettes

½ c. rice
1 c. scalded milk
Yolk of 1 egg
½ c. boiling water
½ tsp. salt
1 tbsp. butter

Method.—Wash the rice, add to water with salt, and steam until rice has absorbed water. Then add the milk, stir lightly with a fork, cover and steam until rice is soft. Remove from the fire. Add the egg and butter. Spread on a plate to cool. Shape, roll in crumbs, roll in the form of nests, dip into egg, then into crumbs, fry in deep fat, and drain. Put a cube of jelly in the hollow of each croquette.

(*Basis for 2 girls, ¼ rule.*)

6. Lobster Cutlets

2 can lobsters
3 egg whites
Nutmeg
¼ c. bread crumbs
½ tsp. salt
1 tsp. dropped celery
½ c. white sauce
Cayenne pepper

Method.—Mix ingredients and cool. Shape in the form of cutlets; crumb, egg, and crumb again. Fry in deep fat. Insert lobster claw in small end of the cutlet.

(*Basis for 2 girls, ¼ rule.*)

7. French Fried Potatoes

Method.—Wash and pare the potatoes and cut into eighths lengthwise. Let soak in cold water 1 hour. Drain and dry between towels. Fry in deep fat until an even brown. Drain on plain paper and sprinkle with salt. If the fat is too hot the potatoes will brown before they are thoroughly cooked.

8. Julienne Potatoes

Method.—Prepare and fry in the same way as French Fried Potatoes, with the exception that the potatoes are cut into shreds or strings instead of into eighths.

LESSON 9

PASTRY

Pastry is mostly flour and fat. It is hard to digest even at its best, and whenever served should be light, flaky, and tender. The lightness of pastry depends on the air enclosed in it; its flakiness, upon the kind and amount of shortening and the method of mixing.

Essentials of Good Pastry.—*Good shortening.* Lard, butter, vegetable fats and oils, or a combination of butter and beef drippings are suitable.

Ice water. It is important that the ingredients be mixed cold.

Pastry flour, which has more starch and makes a drier and more tender crust than bread flour.

Salt, to flavor.

Baking powder, to make the pastry lighter.

Proportions of Ingredients.—Use ¼ to ⅓ as much shortening as flour. Use enough ice water to make a stiff dough.

Pies are made with either one or two crusts. Two crusts are used for fruit and berry pies.

General Methods of Making Pastry.—*Method* 1.—Put the salt and baking powder into the flour and cut the shortening in with two knives or rub it in with the tips of the fingers if the hands are not too warm. Heat softens the fat and makes a tough crust. Pastry must be handled as little as possible.

When the mixture is fine and creamy and looks like meal, add enough water to form a dough. Use the knife to combine the ingredients. Be careful not to make the dough wet.

Turn the dough out upon a floured board, and pat and roll with the knife into a ball. With a slightly floured rolling pin roll the dough lightly until about ⅛ inch thick and a little larger than the pie tin.

Method 2.—Another method of adding the shortening is as follows: Work in half of the shortening as described above, and roll out the dough to the thickness of half an inch; then put in the rest of the shortening, in small pieces, around on top of the dough. Fold up each side of the dough to the center, with the shortening inside, and roll out to fit the tin. This method makes a more flaky crust than the first method.

To Put Crust in the Tins.—Lift the crust on the rolling-pin and lower over the pie tin. Be sure the dough is large enough all around. Fit the dough to the pan gently, so that no air bubbles form underneath the crust next to the pan.

If a single crust is used, have the edge of the dough about 1 inch larger than the pan, and double under, to form an edge to the pie.

If a double crust is used, cut off the crust to fit the pan. To do this, hold the pie in the left hand and a knife in the right. Slant the knife with the point away from the body, and cut along the edge of the tin. (See Fig. 36.)

To Put Crusts Together.—Put the filling in the lower crust. When ready for the upper crust dip the fingers in cold water and wet the edge of the lower crust.

Make slight openings in the upper crust to let the steam out of the pie when baking. Lift the crust on the rolling pin and lower upon the pie; fit down, and cut off even.

Press the edges of the two crusts together to hold in the juice of the pie. This may be done with a fork or with the fingers. Do not press so hard that the crust will bake to the pan.

Fig. 36. Fitting pastry to a pie tin, and method of baking crust on inverted tin.

Time for Baking Pies.—*Two-crust*, fruit and berry pies require 40 to 45 minutes in a hot oven.

For the bottom crust bake a crust first on the inverted tin to allow for the shrinking of the dough. Bake 5 or 6 minutes in a hot oven. Slip the baked crust to the inside of the tin, put in the filling, and return to the oven to complete the baking.

APPLICATION (Two-crust pies)

Demonstrate cutting in the shortening and rolling out pastry according to Method 1.

1. Plain Pastry

¼ c. shortening (lard or half butter and lard)
1 c. pastry flour ½ tsp. salt
¼ tsp. baking powder
Ice water ⅛ to ¼ c., or enough to moisten dough

Method.—Have all materials cold, mix and sift the flour, salt, and baking powder, cut in the shortening with knives until fine like meal. Add enough ice water to make a stiff dough. Be careful not to make the dough sticky. Take on a slightly floured board and roll lightly to ¼ inch thickness. If pastry stands on ice before rolling out it improves it. Bake in a very hot oven. Makes 2 crusts for large pie.
(*Basis for* 2, *one small pie*, ½ *rule.*)

2. A Richer Pastry (Method 2)

1½ c. flour ⅓ to ½ c. shortening (butter)
½ tsp. salt ¼ tsp. baking powder
Ice water to make a stiff dough

Method.—Mix and sift dry ingredients; rub in half the shortening, as in Method 2; add the ice water, and roll out the dough on a floured board. Put remaining butter on top in small pieces. Fold pastry or roll up and divide in two parts if two crusts are needed. Roll out each crust separately. Makes 2 crusts.

3. Apple Pie

4 or 5 sour apples
½ c. sugar
1 tsp. lemon juice
¼ tsp. cinnamon or nutmeg
1 tsp. butter
2 tbsp. water
⅛ tsp. salt

Method.—Wash, pare, and slice the apples. Line the pie plate with pastry and fill with sliced apples. Mix the sugar, salt, and spices and sprinkle over the apples. Add the lemon juice, butter, and water. Use more or less water according to the kind of apples used. Place on the upper crust. Bake in a hot oven 40 or 45 minutes or until the apples are well cooked.

(*Basis for* 2, ¼ *rule.*)

4. Berry Pie

1½ c. berries (blackberries or blueberries)
½ c. sugar
⅛ tsp. salt
1 tbsp. flour

Method.—Line a deep pie tin with plain paste, fill with berries, which have been washed and picked over. Cover with sugar, add salt, and dredge with flour. Berries may be cooked before adding to the pie crust, if preferred. Place on upper crust, and bake 40 to 45 minutes in a hot oven.

5. Mock Cherry Pie

1½ c. cranberries
1 tsp. butter
⅛ c. water
½ c. seeded raisins
1 c. sugar
1 tbsp. flour
1 tsp. almond extract

Method.—Line the pie tin with plain paste, put in the cranberries, which have been thoroughly washed and cut in halves. Add the washed raisins and then the sugar, water, and almond extract. Dredge with flour, place bits of butter on top, and put on the upper crust. Bake 40 to 45 minutes in a hot oven.

6. Rhubarb Pie

1½ c. rhubarb
½ c. raisins
⅛ c. brown sugar
2 tbsp. flour
1 tsp. butter

Method.—Wash and cut up the stalks of young rhubarb, but do not peel. Line a pie tin with plain paste, fill with the rhubarb. Wash the raisins and add to the pie, cover with brown sugar, dredge with flour, add bits of butter on top, and put on the upper crust. Bake 40 to 45 minutes in a hot oven.

7. Mince Meat

4 lbs. lean beef	½ lb. citron cut fine
2 lbs. beef suet	2 c. molasses
6 c. chopped apples	2½ qts. cider
3 quinces	1 tbsp. cinnamon
3 lbs. sugar	2 tsp. nutmeg
3 lbs. currants	1 tsp. pepper
4 lbs. raisins (seeded)	Salt to taste
Juice 2 oranges	Rind of ½ orange

Method.—Cook the meat and suet until tender, let cool in the kettle, and the suet will form on the top in a cake of fat, which may be removed. Cut or chop the meat quite fine, and add the apples, which should be twice the amount of the meat when chopped. Chop the quinces and add to the meat; then add the sugar, molasses, cider, raisins, currants, and citron. Add the suet cut fine, also the meat stock in which the meat was cooked, reduced to about 1¼ cups. Heat all gradually, stir slowly, being careful not to mash ingredients. Cook slowly about 2 hours; then add the spices. Sweet pickle vinegar gives a pleasant flavor to the mince meat, and may be utilized in this way. Keep in stone jars or seal in glass jars until ready to use.

8. Mince Pies

Method.—Fill lower crust with the mince meat and cover with bits of butter, dredge with flour, and place top crust. Bake 40 to 45 minutes in a hot oven. Individual pies may be baked in little tins or in muffin tins.

LESSON 10

PASTRY (Continued)

One-Crust Pies.—For cooked mixtures a one-crust pie is used. The crust is much more crisp if baked first. To avoid the shrinking of the paste, bake the crust on the bottom of the inverted tin. Place on carefully, allowing the paste to come well down over the edge of the tin; trim off evenly, and fold pastry under to make a rim. Prick the crust in several places before baking. When the crust is baked, which requires 5 or 6 minutes, slip it off the bottom of the plate to the inside, and fill. One-crust pies do not require as long a time for baking as two-crust pies.

Tins for Pies.—Perforated tin plates are best for baking pies. These may be had shallow or deep, as preferred. The under crust of pies is more thoroughly cooked and browned in these tins than when baked in earthen or granite pans. Never grease a pie tin, for pastry contains enough shortening to prevent the crust from adhering to the tin. Pies can be slipped to earthen plates when cool.

Food Value of Pastry.—Pastry is very hard to digest. The fat in pastry completely envelops the starch grains in the flour, preventing contact with water and with the digestive juices. Only tender, flaky pastry should be eaten, and that only by persons who are well and possessed of good digestion.

APPLICATION (One-crust pies)

1. Lemon Pie

1 c. sugar	4 tbsp. lemon juice
2 eggs (yolks)	Grated rind 1 lemon
3 tbsp. cornstarch	1 tsp. butter

1 c. boiling water

Method.—Mix the sugar and cornstarch. Put in a double boiler, add boiling water, and stir constantly. Cook 2 minutes, and add the butter, beaten egg yolks, rind, and lemon juice. Bake a crust on the bottom of the pan, slip into the inside of the pan, fill with lemon mixture slightly cooled, and cover with meringue. Return to top grate of hot oven and brown meringue quickly.

Meringue

2 egg whites	½ tsp. lemon juice
2 tbsp. powdered sugar	¼ tsp. vanilla

Method.—Beat the whites until stiff, add the sugar gradually, and then the flavoring.

(*Basis for 2 girls, ½ rule.*)

2. Custard Pie

2 eggs	⅛ tsp. salt
¼ c. sugar	Nutmeg (grated)
2 c. milk	1 tsp. vanilla

Method.—Line a pie tin with pastry, make a good rim on the crust. Scald the milk and pour over the slightly beaten eggs; add the sugar and salt. Strain the mixture into the lower crust, and grate a little nutmeg over the top. Bake in a hot oven to cook the rim well; then reduce the heat and cook more slowly until custard is firm. Test with knife as with cup custard. Egg mixtures require a moderate oven.

(*Basis for 2 girls, ½ rule.*)

3. Pumpkin Pie

1½ c. cooked and strained pumpkin
½ tsp. ginger or nutmeg
2 eggs
1½ c. milk
⅔ c. brown sugar
1 tsp. salt
1 tsp. cinnamon
1 tsp. orange juice

Method.—Mix pumpkin, sugar, salt, and spices, add slightly beaten egg, and milk. Beat well; then add the orange juice. Fill the crust and bake. When a silver knife inserted in the pie will come from it clean, the pie is done.

4. Banana Pie

½ doz. bananas
⅛ c. powdered sugar
½ tsp. salt
1½ c. whipped cream

Method.—Bake single crust of pastry, fill with sliced bananas, add salt and powdered sugar. Cover with whipped cream just before serving. Red raspberries may be used in place of bananas.

5. Cream Pie

Method.—Make same as Custard Pie, substituting cream for milk and omitting the nutmeg.

6. Chocolate Pie

Method.—Add ¼ square of Baker's chocolate, after it is melted, to the rule for Cream Pie before baking.

7. Cocoanut Pie

Method.—Add ½ cup of freshly grated cocoanut to Cream Pie, before baking.

LESSON 11

CARBOHYDRATES—SUGAR, CANDY

SUGAR is a sweet crystalline substance belonging to the Carbohydrate class of foods. It is soluble in cold water. How does it differ from starch?

Sources.—Sugar is obtained commercially from the sugar cane, sugar beets, and the sugar maple tree.

Kinds.—The principal kinds of sugar are:—1. *Cane sugar*, or *sucrose*, obtained from sugar cane, beets, and the sugar maple tree.

2. *Grape sugar*, or *glucose*, found in grapes, in dried fruits, like raisins and dates, and in honey. Commercial glucose is made from corn starch by boiling with an acid. Glucose is not as sweet as cane sugar.

Honey is a natural sirup made up chiefly of a mixture of sugars and water.

3. *Milk sugar*, or lactose, obtained from milk.

Sugar Cane.—Sugar cane is a tropical plant similar to corn and grows to a height of from 8 to 15 feet. The stalk is spongy like corn and is filled with sweet sap. When ripe the cane is stripped of leaves and tops and is cut and taken to the mill.

Sugar Beets.—Sugar beets are profitably grown in many states. About half of the world's supply of sugar is made from beets. There is no difference between beet and cane sugars.

Manufacture of Sugar.—The sweet juice is extracted by crushing the cane or beets between rollers. The juice is purified and then evaporated down to a sirup by heating in vacuum pans. The sugar crystallizes out from the

sirup and is removed by centrifugal means. What does not crystallize remains as molasses. Molasses from sugar beets is not used for the table; no way has been found to purify it. Brown sugar is raw, unrefined sugar. In certain methods of manufacture, it is redissolved, passed through filters of lamp black to remove the color, and then recrystallized.

Forms of Sugar.—The crystals of sugar as separated from the sirup and dried form *granulated* sugar. When the thick sirup is run into molds, it hardens and forms *loaf* sugar, which may be sawed into cubes. The broken pieces ground fine become *powdered* sugar.

Food Value of Sugar.—Sugar in moderate amounts has the same food value that starch has, but is in an easier form for digestion. For this reason it is of value to persons who have difficulty in digesting starch. It is very good in times of great exertion or labor, when the body demands an immediate supply of energy. If taken in excess or between meals it is very apt to cause indigestion or to spoil the appetite for nutritious foods that are needed.

Candy.—Candy is a useful food when eaten at the proper time, at the close of a meal. Homemade candy is cheaper and purer than that bought in many stores. Impure sugar and unwholesome coloring matter are too often used in the manufacture of candies.

Effects of Heat on Sugar.—Sugar undergoes several changes during the process of cooking. The terms "soft ball," "hard ball," "thread," "the crack" or "brittle" and "caramel" are used in making candy to distinguish the different temperatures and changes.

1. *Soft ball* is the stage of heating sugar when a little dropped into cold water and then rolled in the fingers forms a soft ball.

2. *Hard ball* is the stage when sugar similarly tested makes a hard ball in the fingers.

3. *Thread* is a higher temperature stage when the sugar spins a thread when dropped from a spoon.

4. *The crack* or *brittle* stage is reached when the sugar immediately hardens and crackles when dropped into cold water.

5. *Caramel* is the stage at which the heat causes the sugar to turn brown.

Utensils for candy-making are: 1. A large agate or iron kettle, as sugar burns very easily. 2. A wooden spoon or paddle for mixing. 3. Buttered tins or a marble slab for cooling.

APPLICATION

1. Peanut Brittle

2 c. sugar
1 c. chopped peanuts
Pinch of salt

Method.—Melt the sugar without water in a frying pan. Stir with a wooden spoon constantly, until clear and a light brown; then pour over the peanuts spread on a buttered pan. While still warm cut into squares.

(*Basis for 2 girls, ¼ rule.*)

2. Chocolate Fudge

2 c. sugar
1 c. milk or cream
1 tbsp. butter
½ tsp. vanilla
2 squares chocolate

Method.—Cook the sugar, milk, and chocolate in a pan, stirring constantly, until a little forms a soft ball when tried in cold water. Add the butter, and remove from the fire. Let stand until nearly cold; then add the vanilla and beat hard until it begins to thicken and to wrinkle at the edge of the pan. Spread quickly 1 inch thick on a buttered pan; cool and cut in 1½ inch squares.

(*Basis for 2 girls, ½ rule.*)

3. Chocolate Nut Fudge

Method.—Chocolate nut fudge is made by adding ½ cup of walnuts or pecans, cut in small pieces, to Chocolate Fudge just before beating it.

4. Pinoche

2 c. brown sugar
½ c. milk
2 tbsp. butter
½ c. pecans
½ tsp. vanilla
Pinch of salt

Method.—Boil the sugar, milk, and butter until a soft ball is formed in cold water, stirring constantly. Remove from the fire, cool, and then add the nuts and vanilla and beat until thick and creamy. Spread 1 inch thick on buttered tins. Cut in 1½ inch squares.

(*Basis for 2 girls, ¼ rule.*)

5. Sea Foam

2 c. sugar
½ c. corn sirup
¾ c. boiling water
½ c. chopped walnuts
3 egg whites
½ tsp. vanilla

Method.—Boil sugar, sirup, and water until a hard ball is formed in cold water, or it spins a thread. Beat the eggs stiff and dry; then pour on the sirup very gradually, add the nuts cut fine and beat until very creamy. Spread 1½ inches thick on a buttered pan and cut in squares.

(*Basis for 2 girls, ½ rule.*)

6. Butter Scotch

1 c. sugar
¼ c. molasses
1 tbsp. vinegar
2 tbsp. boiling water
½ c. butter

Method.—Boil the ingredients until the crack or brittle stage. Pour in buttered pan, about ¼ inch thick, and mark in squares while still warm.

7. Pulled Taffy

2 c. sugar
½ c. vinegar
3 tbsp. butter
1 c. water
1 tsp. vanilla
½ tsp. lemon extract

Method.—Boil sugar, butter, water, and vinegar until a little forms a soft ball in cold water. *Do not stir.* Flavor, pour on buttered platter, and pull as soon as possible.

(*Basis for 2 girls, ½ rule.*)

8. Pop Corn Balls

1 c. corn syrup
½ c. sugar
1 tsp. cream tartar
2 tbsp. butter
1 tbsp. Vinegar
¼ tsp. soda
4 qts. popped corn

Method.—Boil the syrup, sugar and cream of tartar to the soft ball stage. Then add the butter and soda. Pour over the freshly popped corn, cool and shape into 15 balls.

9. Cheap Butter Scotch

1 c. light brown sugar
¼ c. vinegar
1 tbsp. butter

Method.—Boil the sugar and the vinegar to the crack stage. Add the butter and pour into buttered pans to cool. Mark in squares before it is cold.

LESSON 12

PROTEIN—FISH

FISH is next to meat in importance as an animal food. Fish contains albumin, gelatin, fat, mineral matter, and water.

COMPOSITION OF FISH (DRESSED FOR MARKET)

Kinds	Refuse	Protein	Fat	Carbohydrate	Mineral matter	Water
	%	%	%	%	%	%
Black bass	46.7	10.3	.5	——	.6	41.9
Cod, salt, boneless	——	22.2	.3	——	23.1	54.4
Halibut	17.7	15.1	4.4	——	.9	61.9
Mackerel	34.6	13.7	6.2	——	1.0	44.5
Perch	62.5	7.2	1.5	——	.4	28.4
Pickerel	35.9	11.9	.2	——	.9	51.1
Pike	30.5	13.0	.4	——	.7	55.4
Salmon	39.2	12.4	8.1	——	.9	37.4
Shad	50.1	9.2	4.8	——	.7	35.2
Smelts	41.9	10.0	1.0	——	1.0	46.1
Trout, brook	37.9	11.7	1.3	——	.7	48.4
Trout, lake	35.2	12.4	6.6	——	.8	45.0
Whitefish	53.2	10.3	3.0	——	.7	32.5
Clams	——	10.6	1.1	5.2	2.3	80.8
Lobsters	61.7	5.9	.7	.8	.2	30.7
Oysters	——	6.1	1.4	.9	3.3	88.3
Shrimps	——	25.4	1.0	.2	2.6	70.8

Kinds.—Fish are classified as *vertebrates*, or fish proper, those having a backbone; and *shellfish*. Those having a backbone are divided into two classes: white fish and oily fish.

In the white-fleshed fish, the fat is found only in the liver; in oily fish, the fat is found distributed throughout the entire body.

White-fleshed fish include whitefish, cod, perch, pickerel, sunfish, smelts, croppies, soles, brook trout, and black bass. Oily fish include salmon, lake trout, shad, herring, mackerel, halibut, and eels.

Structure of Fish.—The flesh of fish is made up of bundles of fibers similar to those of meat, but there is so little connective tissue that the bundles of fibers are not held together as firmly as in meat. Notice how easily we can pull the flesh of fish apart. Examine and compare with the structure of meat.

Food Value.—Fish is like meat in nutritive value, and may be substituted for it in the diet. It is not, however, so satisfying and stimulating as meat, largely because it contains less extractives. Fish belongs to the proteins; it contains a varying amount of fat and practically no carbohydrates. In general, the fuel value of 1 pound of fish is about equal to ⅓ pound of meat.

Digestibility.—In general, fish is easily digested, varying with the amount of fat and coarse fiber present. White fleshed fish, excepting the cod, is more easily digested, but less stimulating, than oily fish. Cod has coarser fiber than other white-fleshed kinds.

Freshness is the all-important quality in fish. Fish decomposes quickly and there is greater danger from ptomaine poisoning than in other foods. This is especially true of shellfish, which are preferably shipped and sold alive.

To Tell if a Fish Is Fresh.—1. The gills are bright red and clear.

2. The eyes are bright and full.

3. The flesh is firm, the tail not drooping.

4. The scales do not come off easily and there is no disagreeable odor.

To Clean Scaly Fish.—Fish are cleaned at the market, if ordered. Remove the scales by working a knife over the fish, beginning at the tail and drawing the knife towards the head. If the fish is to be used at once, dip it into boiling water and remove immediately. This aids in loosening the scales. Wash the fish thoroughly inside and out with a wet cloth, then dry on a clean cloth. Leave the head and the tail on for baking whole. Keep on ice, but not in the ice box, since the odor may taint the other foods.

To Skin a Fish.—With a sharp knife slit the skin along the entire length of the backbone. Remove the fins. Loosen the skin by working carefully with a small knife, beginning at the center of the back and working along one side around the fish. Then turn the fish over and loosen the skin on the other side.

To Bone a Fish.—After the fish is skinned begin at the tail with the boning knife and separate the flesh from the backbone on each side. Follow the ribs and work carefully towards the head. The entire backbone and the ribs will all come out together. See that all the little bones are removed.

Methods of Cooking Fish.—Broiling and baking are the best methods of cooking fish. They may also be fried, sautéd, or boiled. White fish may be fried, but oily fish rarely. Since fish contains albumin, cold water and boiling water have the same effect on it as on meat and egg white. Review this point. What temperature is best for the cooking of albumin?

Large fish are suitable for baking whole, the stuffing and the sauce usually served with it supplying food elements that the fish lacks.

Oily fish and those that are of small size are usually broiled. Boiling is a rather wasteful way of cooking fish.

Why? Large pieces of cod, and salmon, sometimes trout, may be boiled.

APPLICATION (Baked Fish—Demonstration)

1. Baked Fish

Method.—Remove the scales carefully, clean, wipe, and dry the fish. Leave the head and tail on. Rub the fish well with salt. Stuff with dressing and sew up, using a coarse needle and thread. Be careful not to fill the fish too full, for the dressing expands during the baking. Put

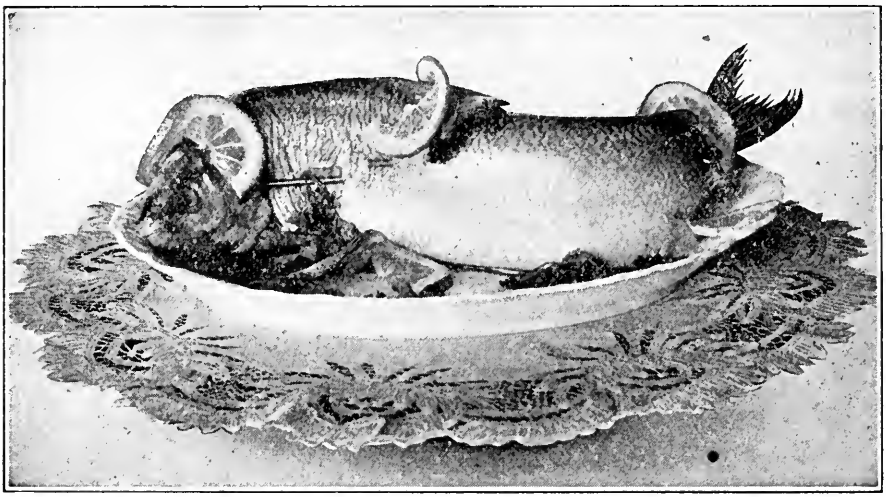

Fig. 37. Baked white fish.

fish on a fish sheet or on strips of cotton or bacon in the pan, which aids in removing the fish when done. Make three gashes on each side of the fish, alternating, and set in 2-inch strips of bacon. This is done to add fat to fish that are lacking it, as white fish. Skewer the fish into the form of the letter S. Sprinkle with salt and pepper and dredge with flour. Bake in the oven 30 to 45 minutes, basting every 10 minutes from 1 cup of hot water to which has been added ¼ cup of butter. When well browned, remove from

the pan carefully to a hot platter; take out the skewers and strings. Garnish with parsley and lemon, and serve hot with a fish sauce.

2. Dressing for Fish

1 c. stale bread crumbs
½ tsp. salt
1 tbsp. minced parsley
1 tbsp. melted butter
Pepper, a few grains
Onion juice, a few drops
Water, enough to moisten

Method.—Mix the ingredients in the order given; use enough water to moisten slightly.

3. Hollandaise Sauce

½ c. butter
½ tbsp. vinegar or
1 tbsp. lemon juice
Yolk of 2 eggs
¼ tsp. salt
Cayenne, a few grains

Method.—Wash the butter, separate it into three parts, and put one piece in the double boiler with the vinegar or lemon juice and egg yolks; stir constantly with a wire whisk. Add second piece of butter, and, as the material thickens, the third piece. Remove from the fire and add the salt and cayenne. If left over the fire a few seconds longer it will separate. If a richer sauce is desired, add ½ tablespoon heavy cream and ½ teaspoon hot water.

(*Housekeepers make full rule.*)

4. Drawn Butter Sauce

⅓ c. butter
1½ c. hot water
3 tbsp. flour
½ tsp. salt
⅛ tsp. pepper

Method.—Put half the butter in a pan; when bubbling, but not brown, add the salt, pepper, and flour and stir until smooth. Add the water and stir while it thickens. Add the remainder of the butter and stir until it is absorbed.

5. Caper Sauce

2 c. boiling water
½ c. butter
½ tsp. salt
4 tbsp. flour
⅛ tsp. pepper
½ c. capers

Method.—Melt half the butter, add the flour. Stir while gradually adding the boiling water. Boil five minutes, add salt, pepper, remaining butter, and drained capers.

6. Tartar Sauce

½ c. mayonnaise dressing
1 tsp. chopped pickle
1 tsp. parsley, washed and chopped
1 tsp. chopped olives

Method.—Mix the parsley, pickle, and olives, and add them to the mayonnaise dressing.

LESSON 13

PROTEIN—FISH (Continued)

REVIEW Lesson 12.

APPLICATION

1. Fried Fish

Method.—Clean fish and wipe as dry as possible. Sprinkle with salt and pepper, dip into flour or crumbs, into egg, and again into crumbs. Fry in deep hot fat; drain on soft paper. Serve on a hot dish, garnishing with parsley and slices of lemon. Cornmeal may be used in place of the flour.

2. Broiled Fish

Method.—Bluefish, cod, haddock, and mackerel are split down the back and broiled whole, removing head and tail if desired. Salmon, halibut, and swordfish are cut in inch slices for broiling. Smelt and other small fish are broiled whole without splitting, but the entrails are squeezed out carefully so as not to bruise the fish. Clean and wipe the fish, sprinkle with salt and pepper, and place in a well-greased wire broiler, cooking the flesh side first. Turn it and cook the skin until crisp. Sliced fish should be turned often while broiling, slip upon a hot platter, or place platter over fish and invert platter and broiler together.

Small fish require 10 to 15 minutes for broiling.

Large fish require 15 to 20 minutes for broiling.

3. Sautéd Fish

Method.—Prepare the fish as for frying, and cook in a frying pan with a small amount of fat. The fish may be dipped into cornmeal in place of flour. Smelts are best cooked in this way.

4. Boiled Fish

Method.—Large fish are cut in thick pieces for boiling. Clean and wipe the fish; tie in a piece of cheesecloth to prevent the deposit of scum on the fish and to hold the fish together. Place the fish on a rack or frying basket to preserve its shape and to make it easier to remove. Cook gently in enough boiling salted water to cover the fish, using 2 teaspoonfuls of salt and 2 tablespoonfuls of vinegar to each quart of water. The salt gives flavor; vinegar or lemon juice keeps the flesh white. Allow about 10 minutes to the pound. The fish is cooked when the flesh is firm and separates easily from the bone. Remove from the water, take off the cheesecloth, put on a hot platter and serve with Hollandaise Sauce.

5. Salmon Mousse

1 lb. salmon, either chopped or pounded fine

4 eggs	2 tbsp. butter
2 tbsp. flour	1 c. stock, or milk or cream

Method.—Chop the salmon in small pieces, the finer the salmon the creamier the mousse; add the yolks of eggs, melted butter, flour, and stock; put all through a strainer. Add 2 teaspoonfuls of salt and ¼ teaspoonful of pepper; fold in the beaten whites of eggs. Turn into a well-buttered mold. Set the mold in a pan of hot water and bake in a moderate oven ½ hour. The mousse is done when it is light to the touch. Serve with or without sauce. Potato balls are appropriate with it. This rule serves 6 persons.

(*Basis for 2 girls, ¼ rule.*)

6. Fried Frogs' Legs

6 pairs frogs' legs	Fine bread crumbs
1 egg	Salt and pepper

Method.—Skin and wash the legs in cold water and dry them on a clean towel. Season with salt and pepper and a little lemon juice. Beat up the egg slightly, and dip the

legs into the beaten egg, then into the fine crumbs, and fry in hot fat for about 5 minutes. Drain on plain paper. A wire frying basket is best to fry them in. Serve hot with Tartar Sauce.

7. Salmon Loaf

1 can salmon
2 eggs
1 tsp. lemon juice
1 c. stale bread crumbs
½ c. milk
1 tsp. salt

Method.—Mince the salmon and remove the bones. Add the bread crumbs, beaten eggs and the milk. Season with salt and lemon juice. Put into well greased molds and steam or bake 30 minutes. Turn from the mold, serve hot or cold with white sauce, sour sauce or lemon.

8. Codfish Puff

½ c. shredded codfish
1 c. potatoes diced
2 eggs
Dash of pepper
1 tbsp. butter

Method.—Soak the codfish in cold water for 15 minutes. Shred it into bits. Pare and dice the potatoes, and cook with the codfish in boiling water until tender. Mash, add the butter and pepper. Beat well with a fork until the codfish is in fine threads. Beat the eggs very light and fold into the fish mixture. The mixture should be soft and creamy. Have an omelet pan hot. Grease the bottom, add the fish mixture, spread evenly about ½ inch thick and cook slowly until a brown crust is formed. Loosen the edges and roll one side over half way and turn out on a hot plate like an omelet.

LESSON 14

PROTEIN—FISH (Continued)

Preservation of Fish.—Fish are preserved by salting, smoking, drying, or a combination of these, and by canning. Many fish are preserved in oil. Name some examples of each.

Cost.—Fish are never plentiful except in seaport towns or near lakes and rivers where they abound. Fish are very perishable and must be transported in refrigerator cars or else frozen or preserved by one of the above mentioned methods. For this reason the price of fish is never very low, where fish is not easily available.

Using Left-overs.—Cooked fish left-overs may be broken up into small pieces and used with cream sauce, or scalloped, or made into hash, croquettes, or fish balls.

APPLICATION

1. Creamed Codfish

½ c. salt codfish
2 c. milk
4 tbsp. flour
2 tbsp. butter
Spk. of pepper

Method.—Wash, pick the codfish into small pieces, and soak it a few hours in lukewarm water until soft. Drain and add to a white sauce made from butter, flour, pepper, and milk. The beaten yolk of an egg may be added just before serving. Serve on or with hot buttered toast.

(*Basis for 2 girls, ¼ rule*).

2. Fish Balls

1 c. salt codfish
2 c. potatoes
1 egg
½ tbsp. butter
Pepper

Method.—Pick the codfish into small pieces and soak in lukewarm water until soft. Boil and mash the potatoes,

season with butter and pepper, and add beaten egg. Drain the fish, add to the potato mixture, and beat well. Take up by heaping tablespoonfuls and shape into balls; fry about six at a time in deep fat. Drain on brown paper. Garnish with parsley and serve.

(*Basis for 2 girls, ¼ c. codfish.*)

3. Fish Croquettes

1½ c. flaked salmon	1 tbsp. flour
¾ c. halibut	2 tsp. butter
Salt and pepper	¼ c. milk

Method.—Put the butter and flour together, add the hot milk slowly, and press out all lumps. Stir the mixture and cook it until it is smooth and thick; add the salt, pepper, and flaked fish. Spread the mixture on a plate to cool. When cool, shape, roll in crumbs, in egg, and then in crumbs. Fry in deep fat and drain on brown paper. Serve on a hot dish and garnish with parsley.

4. Fish and Macaroni

Method.—Pieces of left-over fish may be combined with boiled macaroni and white sauce and served as a luncheon dish.

5. Finnan Haddie

Method.—Soak the fish in cold water for ¾ hour; then lay them in boiling water for 5 minutes. Wipe very dry, rub butter and lemon juice into the fish, and broil for 15 minutes. Serve with a hot butter sauce.

6. Creamed Finnan Haddie

Method.—Put the fish in cold water, cover and let soak 20 minutes. Gradually bring the water to a boil and simmer ½ hour. Drain, rinse, and separate the fish into flakes, using a fork. To each cup of fish use ½ cup of medium white sauce, heat together, season with salt, pepper, and plenty of paprika, and serve.

LESSON 15

PROTEIN—SHELLFISH

SHELLFISH used for food include oysters, clams, scallops, lobsters, shrimps, crabs, and mussels.

OYSTERS

Source.—Oysters are found in shallow salt water, the supply for this country coming mostly from the Atlantic and Gulf coasts. They are cultivated in large quantities in the Chesapeake Bay.

Season for Oysters.—Oysters are in season from September to April, or in any month containing an *r*. Avoid them in hot weather, when they are flabby and poor.

Growth.—An oyster shell has two parts, connected by a hinge. The part on which the oyster grows is deeper and rounder than the part covering it. There are two strong muscles that open and close the shell. The oyster has neither head nor tail, but has a mouth near the hinge end of the shell. Oysters spawn during the summer. One oyster lays millions of eggs in a season. Small oysters are planted along the coast, much as young fish are put into streams.

Food Value.—The nutrient of the oyster is mainly protein, which is very delicate and requires a moderate temperature and not long cooking. Oysters are more easily digested when raw, and are nutritious. Bulk for bulk they compare favorably with milk in food value. Oysters live on plant and animal life brought to them in the water. If the water in which they grow is impure, they are likely to become carriers of disease.

To Open Oysters.—Run a thin knife blade under the back opening and cut forward through the strong muscle which holds the shell together. Then open the shell and remove the oyster.

To Clean Oysters.—Drain off and save the liquid from the oysters. Put the oysters in a strainer and pour cold

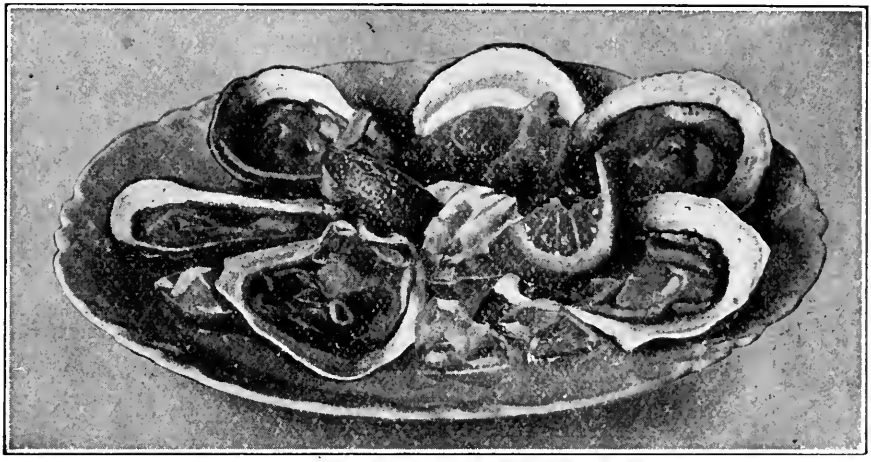

Fig. 38. Blue points, as served.

water over them to rinse them. Pick over the oysters separately to remove any pieces of shell. Use the oyster liquid in stews.

Blue points are small oysters so named because the first came from Blue Point, Long Island. They are regarded to be of extra quality.

OTHER SHELLFISH

Clams are similar to oysters. The hard-shell varieties are known as little neck clams, and are served in the half shell, in coast towns. The soft-shelled clams are used more in New England.

Lobsters are abundant from June to September, but are used all the year. A lobster weighs about 2 pounds, and is

12 to 15 inches long. Lobsters are more difficult to digest than other shellfish. They are broiled or boiled.

Shrimps are in season from May to October, and are found more abundant in Southern waters, the best coming from Lake Pontchartrain. Canned shrimps are much used for salads.

APPLICATION

1. Oyster Stew

2 c. milk (scalded)
2 c. oysters
1 c. oyster liquor
1 tbsp. butter
⅛ tsp. white pepper
Salt to taste

Method.—Pick over the oysters, wash in a strainer set in a bowl of water, removing any adhering pieces of shell. Heat the oyster liquor; then add the oysters and cook until the edges curl, which requires only a few minutes. Add the hot milk, butter, and seasoning, and serve at once. Oysters become tough if not served immediately or if over-cooked.

2. Fried Oysters

1 doz. select oysters
1 tsp. salt
⅛ tsp. pepper
½ c. cracker crumbs
2 eggs
4 tbsp. water

Method.—Clean oysters, and dry them thoroughly between two towels; season with salt and pepper. Roll in fine crumbs and then in beaten eggs to which has been added the water; then roll in fine crumbs again, and fry in a wire basket in deep, hot fat until nicely browned. Drain on a piece of plain paper. Serve hot, garnished with parsley or cabbage slaw and lemon.

3. Creamed Oysters

1 pt. oysters
1½ c. medium white sauce
⅛ tsp. celery salt

Method.—Clean and cook the oysters in their liquor until the edges curl; drain, and add to hot medium white sauce; add the celery salt. Serve on squares of toast, in timbale

cases, or in toasted buns. Cut off top of bun, scoop out the center, leaving shell whole. Spread with butter, toast in oven. Fill with creamed oysters. Garnish with parsley and lemon.

4. Oysters on the Half Shell

Method.—Allow 6 oysters on half shell for each plate. Arrange the shells on crushed ice on deep plates, with the shells radiating out from the center. Place a quarter of a lemon and a piece of parsley in the center of each plate. Serve with salt, pepper, horseradish, cocktail sauce, or Worcestershire sauce.

5. Scalloped Oysters

1 pt. oysters	1 c. cracker crumbs
4 tbsp. oyster liquor	½ c. melted butter
2 tbsp. milk	1 tsp. salt
½ c. stale bread crumbs	Pepper

Method.—Mix the bread and the cracker crumbs and the butter. Put a thin layer in the bottom of a buttered baking-dish, cover with oysters, sprinkle with salt and pepper; add half of the oyster liquor and half of the cream or milk.

Cover with another layer of oysters, add the remainder of the liquor and milk and cover with crumbs. Never make more than two layers of oysters, for oysters should be evenly cooked through. Bake 30 minutes in a hot oven. A sprinkling of nutmeg to each layer adds a good flavor.

6. Lobster à la Newburg

1 lb. lobster	⅓ c. cream
¼ c. butter	2 egg yolks
½ tsp. salt	Grating of nutmeg
Cayenne, a few grains	½ tsp. lemon juice

Method.—Cut or break up the lobster meat into cubes. Melt the butter in a pan, add the lobster, and cook until thoroughly heated. Season with salt, cayenne, and nutmeg

and add the lemon juice. Cook 1 minute; then add the thin cream and yolks of eggs well beaten, and stir until the sauce thickens. Serve on squares of hot toast, garnished with parsley and lemon.

7. Shrimp Wiggle

4 tbsp. butter	1½ c. milk
3 tbsp. flour	1 c. shrimps
½ tsp. salt	1 c. canned peas
Paprika	

Method.—Make a white sauce of the butter, flour, milk, and seasoning. Wash the shrimps, remove the dark vein, and break the shrimps into pieces. When the sauce thickens add the shrimps to it, also the canned peas drained from their liquor and thoroughly rinsed. Cook all 4 or 5 minutes and serve on squares of toasted bread. Garnish with parsley, and a stuffed olive.

8. Cabbage Slaw

⅔ c. vinegar	1 small head cabbage
3 tbsp. sugar	2 tsp. salt
1 c. sweet cream	White pepper

Method.—Shave the cabbage very fine, place in a dish, season with salt and pepper. Stir the sugar into the vinegar until all is dissolved; then add the sweet cream gradually and stir thoroughly until the mixture thickens. Pour over the cabbage and serve in place of a salad or as a garnish to accompany fried oysters.

LESSON 16

SALADS

SALADS originally consisted of crisp, green vegetables dressed with oil, vinegar, salt, and pepper. Today salads are made of raw or cooked vegetables, fruit, meat, or eggs, separately or in combination, with a salad dressing.

The essentials in salad making are:—

1. Salads must be cold. All greens used must be crisp.
2. The ingredients in the dressing must be carefully blended and not be too strong of either acid or oil.
3. The whole must be well mixed just before serving.
4. Materials must be nicely cut and arranged.

Points in favor of salads as a frequent dish in the diet:—

1. Salads have considerable food value, since the greens used furnish the body with needful mineral salts and furnish bulk to food. The dressing contains oil and acid.
2. Vegetable and fruit salads are refreshing and appetizing.
3. Meat salads contain much food value and may be substituted for the meat dish.
4. Salads may be made an economical dish, as much left-over food may be used.

Greens used for garnishing salads are lettuce, water cress, parsley, nasturtiums, or chickory.

Wash greens thoroughly in cold water. If wilted let lie in cold water an hour, dry in a towel, roll up carefully in a damp cloth, and put on ice until ready to use. Greens wilt readily, and the dressing must not be added until just before serving.

Classes of salad dressing are:—

French dresssing,—used with crisp greens and vegetable salads.

Cooked dressing,—used with any kind of salad.

Mayonnaise dressing,—used with almost any kind of salad, but especially with egg, meat, and fish. It is not good with fruit salads.

Oils for Salad Dressings.—Use only the best olive oil for salad dressings. Much of the oil sold as olive oil and under foreign labels is nothing more than a cotton-seed

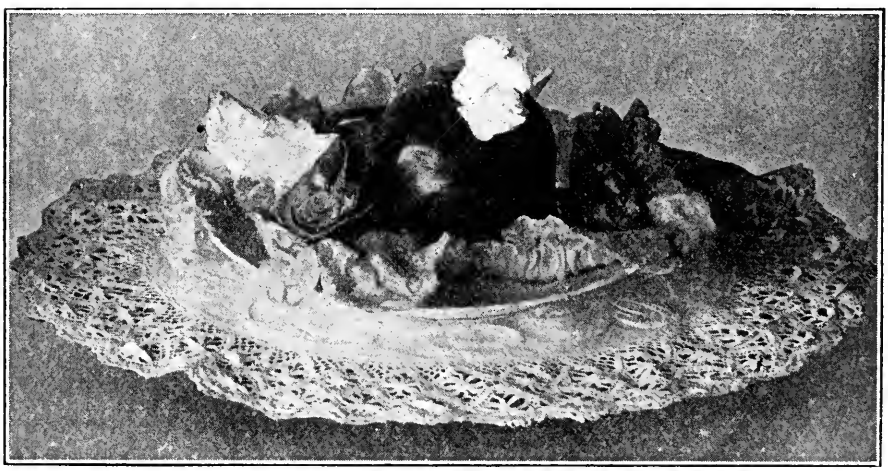

Fig. 39. Tomato and green pepper salad.

oil made in this country. This is pure and good for many purposes, but not for salads, and is easily detected by its strong flavor. In most cases foreign labeled goods bring higher prices than home brands. Home products are usually more economical and of better quality than foreign goods, contrary to the opinion of some American women.

Be sure to read all labels carefully.

Preparation of Materials for Salads.—1. Clean the greens and vegetables.

2. Remove all bones, skin, and fat from fish and meat.
3. Cut up materials into uniform size, not too large.
4. Chill all materials before combining.

What to Serve with Salads.—Serve crisp crackers, cheese straws, small sandwiches, nutbread, or small slices of angel food spread with preserved figs and rolled as a jelly roll.

APPLICATION

1. French Dressing

½ tsp. salt
¼ tsp. pepper
2 tbsp. vinegar
4 tbsp. vegetable oil

Method.—Mix ingredients and stir until well blended and it thickens slightly. A few drops of onion juice may be added. French dressing is more easily prepared than any other, and is almost always prepared at the table, as greens soon wilt if allowed to stand in the dressing.

2. Boiled Dressing

2 tbsp. sugar
2 tsp. mustard
2 tbsp. flour
2 tsp. salt
Dash paprika
2 eggs
1 c. weak vinegar
1 tbsp. butter

Method.—Mix dry ingredients well. Beat eggs well. Add the vinegar. Combine wet and dry materials slowly. Put all in double boiler and beat with dover beater while thickening. When thick and fluffy add the butter and remove from fire. Serve cold. Whipped cream may be added just before serving.

3. Boiled Dressing

1 c. weak vinegar
Yolk 6 eggs
½ c. sugar
1 tbsp. butter
½ tbsp. salt
½ tbsp. mustard
Red pepper, a pinch
1 c. whipped cream

Method.—Heat the vinegar and butter in a double boiler. Beat yolks in a bowl slightly. Mix mustard, sugar, salt, and pepper together, and add to yolks; beat

well. When vinegar is hot, pour it slowly over the beaten yolks in the bowl, stirring constantly to prevent cooking of eggs, making a smooth mixture. Return all to double boiler and cook until thick, stirring while it thickens. This dressing may be kept several days or a week if placed in glass jars and kept in a cool place. Just before using add whipped cream.

(*Basis for 2 girls, ⅓ rule.*)

4. Mayonnaise Dressing*

1 tsp. mustard	1 egg (yolk)
1 tsp. salt	2 tbsp. lemon juice
1 tsp. powdered sugar	2 tbsp. vinegar
A few grains cayenne	1½ c. vegetable oil

Method.—Mix the dry ingredients, add the egg yolk, and when well beaten add ½ teaspoonful of vinegar. Add a drop or two of olive oil, stir constantly. Continue adding oil a few drops at a time as the mixture thickens and becomes of uniform consistency. When the mixture becomes quite thick, add lemon juice or vinegar alternately with the oil, until all is used, always beating the mixture.

(*Basis for 2 girls, ¼ rule.*)

5. Thousand Island Dressing

1 c. mayonnaise	1 tbsp. chopped pimentos
½ c. olive oil	1 tbsp. chopped green peppers
1 tbsp. tarragon vinegar	1 cooked egg yolk sifted
¼ tsp. paprika	1 tbsp. walnut catsup
1 tbsp. chopped chives	⅓ c. chili sauce

Method.—Make the mayonnaise and keep in a cold place until ready to use. Chop the ingredients fine, blend with the oil and seasoning and keep cold. When ready to use, add the chopped mixture to the mayonnaise quickly and carefully and serve on quarters of clean crisp heads of lettuce.

*To prevent mayonnaise dressing from separating, mix 3 tbsp. of cornstarch and 1 tsp. of salt with ¼ c. of cold water. Add ¾ c. boiling water. Cook till smooth and thick. Cool, and fold into the finished mayonnaise.

SALAD SUGGESTIONS

Mayonnaise, or cooked, dressing may be used with the following combinations:—

1. 1 c. apples, 1 c. celery, ½ c. walnuts (Waldorf salad).
2. 1 c. pineapple, 1 c. bananas, ½ c. cherries.
3. Bananas rolled in chopped nuts.
4. Prunes stuffed with pecans, whipped cream.
5. 1 c. celery, 1 c. apples, green peppers.
6. 1 c. grapefruit, 1 c. marshmallows, 1 c. white grapes, ¼ c. nuts.
7. 1 c. pineapple, 1 c. marshmallows, 1 c. white grapes, ¼ c. nuts.
8. 1 c. oranges, 1 c. Bermuda onions.
9. 1 c. peas, 1 c. cheese, cut in small cubes.
10. 1 c. lobster, 1 c. celery.
11. ½ pt. oysters, 3 grapefruits.
12. 1 chicken, an equal amount of celery (about 1½ c.), ¼ c. olives, ½ c. nuts.
13. 1 c. cooked chicken, 1 cucumber, 1 c. walnuts, 1 c. peas.
14. Sweetbreads, 1 pt., equal amount of cucumbers.
15. 1 c. olives cut lengthwise, 1 c. almonds cut the same.
16. Canned pears cut in halves, shredded almonds. Place almonds in the pears like quills in a porcupine. Serve on lettuce, one for each guest.
17. 2 c. salmon, 1 c. celery, cut fine, ½ doz. sour pickles.
18. Head lettuce and Roquefort cheese.
19. Cooked asparagus, rings of green peppers, slices of pimentos.
20. Sliced hard-boiled eggs, cucumbers, celery, and lettuce.
21. 2 c. cold string beans, 1 tsp. chives cut fine, ½ doz. radishes sliced thin.
22. 1 can strained tomatoes, ⅔ box gelatine, 1 tsp. salt, 1 tsp. powdered sugar. Make a jelly, put into molds, serve on lettuce.
23. Dressing for head lettuce: 1 tsp. parsley chopped fine, 1 tsp. beets, chopped fine, 1 egg hard-boiled cut fine, added to mayonnaise, also a little vinegar, paprika, and chili sauce.
24. 1 pt. beets, 1 pt. cabbage, ½ c. horseradish.

LESSON 17

CAKES WITHOUT BUTTER

CAKES are divided into two classes: (1) *Cakes without butter;* examples, sponge cake, angel food, sunshine cake. (2) *Cakes with butter;* examples, cup and pound cakes.

Things Essential in Cake-Making.—1. Use only the best ingredients,—fresh eggs, fine granulated sugar, best butter, and the best pastry flour.

2. Use accurate measures.

3. Never grease pans for cakes without butter. Grease pans for cakes with butter.

4. Have a uniform heat for cake-baking.

5. Watch the cake during the baking.

Utensils for Mixing.—Use a deep, earthen mixing-bowl and a slotted wooden spoon.

General Method for Cakes without Butter.—Separate the yolks and whites of eggs. Beat the yolks until lemon-colored and thick; add the sifted sugar slowly while beating. Add the flavoring; then fold in the whites beaten stiff and dry. Sift the flour several times, cut and fold it into the mixture, until all is well blended. Pour into a pan wet with water and kept for cakes of this class.

Sponge cakes and others of the class are raised mainly by air and steam and, containing many eggs, need a moderate oven.

Baking.—Oven test for sponge cake: Turns white paper light yellow in 5 minutes.

Put the cake in the center of the lower rack in the oven at first. Later move above if the oven does not brown

enough. Do not open the oven door too much, and avoid any jar or the cake may fall.

The Baking of Cakes.—Divide baking time into quarters:—

1*st quarter*,—the mixture rises.

2*nd quarter*,—it continues rising, begins to brown.

3*rd quarter*—it continues to brown.

4*th quarter*,—it finishes baking, settles and shrinks from the pan.

If oven is too hot, cover cake with tent made of paper, turn gas down or check fire, or place a pan of cold water in oven. Cake should not be moved in oven before it has risen to full height.

Tests for Cake.—**1.** Cake is done when it shrinks from the sides of the pan.

2. Press the top of the cake with the finger; if it springs back into place it is done.

3. Insert a small straw in the center of the cake; if it comes out clean and dry, the cake is done.

Care after Baking.—Remove cake from the pan as soon as it is baked. Run a knife around the edge and invert the pan on a wire cooler or board covered with a cloth.

NOTE.—If cake sticks to the pan, cover the bottom of the pan with a cold damp cloth for a few minutes.

APPLICATION

1. Sponge Cake

Yolks 6 eggs
1 c. sugar
1 tbsp. lemon juice
¼ tsp. salt
Whites 6 eggs
Grated rind ½ lemon
1 c. flour
2 tbsp. water

Method.—Beat the yolks until lemon-colored and thick; add the sugar gradually, continue beating; add water,

lemon juice, and rind. Fold in the whites of the eggs beaten to a stiff froth. Cut and fold in the flour mixed and sifted with the salt. Bake in a slow oven 1 hour in a deep, narrow pan.

(*Basis for 2 girls, ¼ rule.*)

2. Cheap Sponge Cake

1 c. sugar	1 tbsp. lemon juice
5 tbsp. cold water	1⅓ c. flour
2 eggs	2 tsp. baking powder

Method.—Beat the yolks thick, add the sugar and continue beating, and then gradually add the water and lemon juice. Mix and sift the baking powder with the flour and add to the yolks. Beat the egg whites until stiff, and carefully fold into the cake mixture. Bake in an unbuttered tin in a moderate oven.

The baking powder takes the place of some eggs as a leaven.

3. Angel Food

Whites 1 doz. eggs	¼ tsp. salt
1½ c. sugar	1 c. flour
1 tsp. cream of tartar	1 tsp. vanilla

Method.—Beat the whites of the eggs until frothy, add the cream of tartar, and continue beating until eggs are stiff. Sift the sugar several times and then add gradually to the beaten eggs. Sift the flour and salt four or six times; then fold into the mixture, and lastly add the vanilla. Bake in an unbuttered pan in a moderate oven for 45 to 50 minutes.

4. Sunshine Cake

Whites 10 eggs	1 tsp. lemon juice
1½ c. powdered sugar	1 c. flour
Yolks of 6 eggs	1 tsp. cream of tartar

Method.—Beat whites of eggs until stiff and dry, add sugar gradually and continue beating; then add the yolks beaten until thick and lemon-colored, add the extract.

Cut in the flour sifted with the cream of tartar. Bake 50 minutes in a moderate oven in an angel cake pan.

(*Basis for 2 girls, ¼ rule.*)

5. Jelly Roll

3 eggs
1 c. sugar
1 tsp. milk
Jelly
1 tsp. baking powder
¼ tsp. salt
1 c. flour
1 tbsp. melted butter

Method.—Beat eggs until light, add the sugar gradually, and then milk, flour, salt, baking powder, and melted butter. Line a dripping pan with buttered or oil paper, turn in the mixture, spread evenly, bake 12 minutes in a moderate oven. When baked turn on a cloth covered with powdered sugar. Cut a thin strip off of sides and ends of cake, spread with jelly while still hot, and roll up cake by means of the cloth. Keep roll in shape until cake cools. Rolling must be done quickly while cake is hot, to prevent cracking.

6. Uncooked Frosting

2 egg whites
1 tbsp. water
1 tsp. vanilla
2 c. powdered sugar

Method.—Put water and egg whites in a deep dish and gradually add the sugar and vanilla; beat constantly until the frosting is of the consistency to spread without running. More or less than 2 cups of sugar may be required, depending on the size of the eggs.

Chocolate uncooked *frosting* is made by adding 2 squares of melted chocolate to the above rule when about half of the sugar is in.

LESSON 18

CAKES WITH BUTTER

Method of Mixing Cakes with Butter.—Measure ingredients, dry first and then the liquids and butter. Cream the butter; then add the sugar and cream together until the sugar is dissolved and the mixture is creamy. Beat egg yolks with a Dover beater. Beat the whites with an egg whip. Add beaten yolks to creamed mixture; then add liquid alternately with sifted flour, to keep the mixture about the same consistency. If spices are used, sift in with the flour. If fruit or nuts are used, cover them with flour to prevent them from sticking together and settling to the bottom. Add the whites beaten stiff at the last, by cutting and folding in very carefully; add the flavoring and baking powder at the same time. Do not stir the mixture after the egg whites are in. Why?

Pans for Butter Cakes.—Grease pans thoroughly for butter cakes, sift a little flour in the pan after it is greased. See that the corners of the pan are well greased. Fill the pans only two-thirds full of the cake mixture.

Oven Test for Butter Cakes.—White paper turns light brown in 5 minutes. Butter cakes require a hotter oven than those without butter. If the oven gets too hot, place a cover of paper over the cake or set a pan of cold water in the oven.

Frosting a Cake.—Cake may be frosted as soon as baked, if desired. Either cooked or uncooked frostings may be used for either class of cakes; but for cakes without butter, uncooked frosting is very good and keeps the cake more moist.

General Proportions of Ingredients.—For butter cakes use—

⅓ to ½ as much butter as sugar.

½ as much liquid as flour.

Regard butter or shortening as so much liquid. Sour milk or molasses does not thin a mixture as much as sweet milk or water. Mixtures for fruit must be a little stiffer than those without. The proportion of baking powder and flour is the same as in quick breads, but the more eggs in a cake the less baking powder is needed.

Variations for Plain Butter Cakes.—Many kinds of butter cakes may be made from a plain-cake recipe. The following are examples:—

1. White cake,—use 3 egg whites.
2. Yellow cake,—use 4 egg yolks.
3. Chocolate cake,—add one ounce melted chocolate (use less flour).
4. Spice cake,—add ½ tsp. cinnamon, ½ tsp. mixed allspice, nutmeg, and cloves.
5. Fruit cake,—add ½ c. raisins, ¼ c. currants, ¼ c. cut citron.
6. Nut cake,—add ½ c. cut walnuts or almonds.

Make in layers and use different fillings and frostings. If bread flour is used, use a little less than when pastry flour is used.

APPLICATION

1. Plain Cake

¼ c. butter
½ c. sugar
¼ tsp. salt
1 egg
½ c. milk
1½ c. flour
3 tsp. baking powder
1 tsp. vanilla

Method.—Cream the butter, add sugar gradually, and egg well beaten. Sift the flour and add alternately with the milk. Then add the vanilla, and lastly fold in the baking powder, sifted over the top. Bake 30 to 40 minutes in a shallow pan. This rule may be varied in many ways, as stated above.

(*Basis for 2 girls, ½ rule.*)

2. Cup Cakes

⅔ c. butter
2 c. sugar
4 eggs
1 c. milk
3 c. flour
4 tsp. baking powder
1 tsp. vanilla or lemon

Method.—Cream the butter and sugar, add yolks of eggs, beat hard, add the milk, and then the flour mixed and sifted with the baking powder. Fold in the beaten whites, add flavoring, and bake in individual tins. Cover with uncooked frosting. Makes 3 dozen cakes.

(*Basis for 2 girls, ¼ rule.*)

3. Lemon Queens

½ c. butter
1 c. sugar
4 eggs
1 c. flour
2 tsp. baking powder
1 tbsp. lemon juice
Grated rind of 1 lemon

Method.—Cream the butter, add the sugar, add eggs one at a time without beating. Beat mixture hard after adding each egg. Add flour, baking powder, and lemon juice. Bake 25 minutes in small muffin pans. Frost with uncooked frosting or orange frosting. Makes 16 cakes.

(*Basis for 2 girls, ¼ rule.*)

4. Orange Frosting

2 egg yolks
5 tbsp. orange juice
1 tsp. lemon juice
2 c. powdered sugar
1 tbsp. grated orange rind

Method.—Mix orange and lemon juice with rind and let stand 10 minutes; then strain it. Add to egg yolks, slowly add powdered sugar, and beat until all is added and of the right consistency to spread.

LESSON 19

LAYER CAKES

Time.—Bake layer cakes 15 to 30 minutes.

Points of a Good Cake.—1. A good cake is smooth on top and baked to an even brown.

2. Cake rounds slightly toward the center, but does not rise abruptly in the center, crack on top, or sink at the edges. If any of these difficulties occurs, either the cake has been baked too rapidly or too much flour was used.

3. The inside of a good cake is fine, even grained, moist but not sticky, and of the same texture throughout. Coarse-grained cake is caused either by a lack of beating or by too slow an oven.

APPLICATION

1. Spanish Chocolate Cake

½ c. butter	1 tsp. vanilla
1½ c. sugar	2 sq. choc. melted
4 eggs	5 tbsp. boiling water
½ c. milk or water	1¾ sc. c. flour
4 tsp. baking powder	

Method.—Melt the chocolate, add the boiling water. Cream the butter, add sugar, and cream all thoroughly. Add yolks, and beat hard; then add the milk, melted chocolate, and gradually the flour. Beat vigorously. Fold in the stiffly beaten whites of eggs, vanilla, and baking powder. Mix quickly and bake in two layers in a moderate oven. Frost with chocolate or caramel frosting.

(*Basis for 2 girls, ¼ rule.*)

2. White Layer Cake

½ c. butter
2 c. sugar
1 c. water or milk
1 tsp. vanilla
3 c. flour
4 egg whites or
2 whole eggs
6 tsp. baking powder

Method.—Same as for Chocolate Cake. Makes 3 layers. (*Basis for 2 girls, ⅓ rule.*)

3. Cooked Frosting

1 c. sugar
½ c. water
1 egg white
1 tsp. vanilla

Method.—Boil sugar and water together without stirring until it spins a thread when tested. Pour slowly over stiffly beaten egg white. Beat until it holds its shape when dropped from the spoon. Add flavoring, and spread on the cake.

4. Chocolate Frosting

Method.—Add 2 squares melted chocolate to Cooked Frosting.

5. Caramel Filling

2 c. dark brown sugar
1 c. white sugar
½ c. cream
½ c. butter
1 c. hot water

Method.—Boil sugar and water together until it ropes; then add the cream and butter and cook 4 or 5 minutes longer. Spread between layers and on top. Good with Spanish Chocolate Cake.

6. Cocoanut Filling

Method.—Use uncooked frosting rule, add freshly grated cocoanut, and spread thick between layers and on top.

7. Fig Filling

½ lb. figs chopped fine
⅓ c. sugar
⅓ c. boiling water
1 tbsp. lemon juice

Method.—Mix ingredients in the order given, and cook in a double boiler until thick enough to spread. Spread while hot. Figs can be put through a meat chopper.

LESSON 20

LOAF CAKES

REVIEW proportions for cakes.

Review methods of making cakes with and without butter.

Review oven tests.

Time for baking loaf cakes: 40 to 60 minutes.

APPLICATION

1. Gold Cake

¼ c. butter
½ c. sugar
¼ c. milk
5 egg yolks
1 sc. c. flour
1½ tsp. baking powder
1 tsp. orange extract

Method.—Cream the butter, add the sugar gradually, then the yolks of eggs beaten until thick and lemon-colored. Mix and sift the baking powder with the flour, add alternately with the milk to the butter mixture. Bake 40 to 45 minutes in a deep loaf pan.

(*Basis for 2 girls, ½ rule.*)

2. Caramel Cake

1 c. sugar
½ c. butter
½ c. milk
1 tsp. vanilla
2 c. flour
5 egg whites
1½ tsp. baking powder

Method.—Same as any butter cake, folding beaten whites in last. Bake in a shallow loaf cake pan 40 to 45 minutes in a moderate oven. Frost with Caramel Frosting (Lesson 19).

(*Basis for 2, ¼ rule.*)

3. Nut Cake

1½ c. sugar	1 c. walnuts
½ c. butter	4 egg whites
¾ c. cold water	4 tsp. baking powder
2 c. flour	1 tsp. vanilla

Method.—Cream butter and sugar, add the cold water, the flour, half of the beaten egg whites, then the nuts cut and floured, the rest of the beaten egg, and lastly the baking powder and the flavoring. Bake in an oblong loaf cake pan for 50 minutes. Frost with white uncooked frosting.

(*Basis for* 2, ¼ *rule.*)

4. Spiced Loaf Cake

⅓ c. butter	2 c. flour
1 c. brown sugar	1 tsp. soda
½ c. molasses	1 tsp. cinnamon
2 eggs	½ tsp. salt
½ c. raisins	½ tsp. cloves
½ c. strong coffee	⅓ c. currants

Method.—Cream butter and sugar, add the molasses and well beaten eggs. Sift the flour, soda, and spices together, add ½ the flour to the batter, and then the fruit, which has been cut and floured. Add the coffee, finally the balance of the flour. Bake in a loaf cake pan in a moderate oven for 1 hour.

5. Potato Cake

1 c. butter	2 c. sugar
1 c. almonds	½ c. milk or cream
1 tsp. cinnamon	½ tsp. cloves
½ tsp. nutmeg	1½ c. flour
2 tsp. baking powder	½ cake melted chocolate
1 c. mashed potatoes	4 eggs

Method.—Cream butter and sugar, add the finely mashed potatoes while warm, then the yolks of eggs well beaten, then the milk or cream, melted chocolate, and spices. Mix and sift the flour and baking powder, cut nuts fine and dredge with flour. Add flour and nuts to the batter, and lastly the whites of the eggs beaten stiff. Bake

in square loaf cake pan 50 to 60 minutes in a moderate oven. This is a very large cake. Frost with Chocolate Frosting.

6. Fig or Date Cake

1 c. raisins
1 c. figs or dates
1 c. walnuts
1 c. boiling water
1 tsp. soda
1 tsp. vanilla
½ c. butter
1 c. sugar
2 egg yolks
3 egg whites
1 tsp. cinnamon
2 c. flour
¼ tsp. allspice and cloves

Method.—Look over and chop the raisins, figs, or dates, and pour boiling water (in which has been dissolved the soda) over them. Cream the butter and sugar, add the beaten egg yolks, then the spices and fruit with the water, then the flour, fold in the beaten whites, and add vanilla. Bake 1 hour in a loaf cake pan in a moderate oven. Frost with White Frosting.

7. Eggless Cake

2 c. sugar
2 c. water
¾ c. lard
1 c. raisins
1 tsp. soda
3½ c. flour
1 c. walnuts
1 c. currants
1 tsp. cloves
1 tsp. allspice
1 tsp. nutmeg
1 tsp. cinnamon
2 tsp. baking powder
¼ tsp. salt

Method.—Put the sugar, water, lard, fruit, and spices together in a saucepan and cook for 5 minutes. Let cool a little and then add 1 tsp. soda dissolved in a little hot water. Add the baking powder and salt to the flour and sift the flour into the cooled mixture; add the walnuts; beat well, and bake in a slow oven 45 to 50 minutes. This is a large cake and keeps a long time.

LESSON 21

HOT DESSERTS—PUDDINGS

RICH desserts are too heavy to use with a hearty dinner and should be used only to form a part of the meal or lunch. For the most part, fruit is best for dessert with a dinner.

Methods of Cooking.—Hot desserts are either steamed or baked. Steaming is done in a steamer over boiling water (moist steaming), or in a double boiler (dry steaming). Moist steaming is required for heavy puddings, and for those that contain citron or fruit. Dry steaming is necessary for custard, and insures a more even cooking. Steaming is a slow process and requires several hours.

Preparation of Materials.—*Suet.*—Break into small pieces, remove the membranes, and chop on a board. Dredge with flour to prevent suet from being sticky.

To Clean Raisins.—Look over and pick out any imperfect ones and stems. Wash in a strainer set in a bowl of water. Drain, and cut into small pieces. Always dredge with flour before adding to a batter; this prevents the raisins from sticking together. If raisins are not seeded when purchased, pour boiling water over a few at a time, drain, and press out seeds clean before cutting up the raisins.

To Clean Currants.—Wash currants thoroughly in a strainer in a bowl of warm water. Rub them well and change the water several times until it remains clean and all the grit and fine stems are removed. Drain, and dry between towels. Dredge with flour.

Citron.—Cut up citron into small pieces; dredge slightly with flour before adding to a mixture.

APPLICATION

1. Suet Pudding

1 c. suet cut fine
1 c. molasses
1 c. milk
3 c. flour
1 tsp. soda
½ c. raisins
1½ tsp. salt
½ tsp. ginger
½ tsp. cloves
½ tsp. nutmeg
1 tsp. cinnamon
½ c. currants

Method.—Mix and sift the dry materials, add the raisins and currants cut fine and floured. Add the molasses and milk to the suet. Add wet mixture to dry. Pour in buttered mold, cover, and steam 3 hours. Serve hot with a pudding sauce.

(*Basis for* 2, ⅙ *rule.*)

2. Bread Pudding

2 c. stale bread crumbs
1 qt. scalded milk
½ c. sugar
¼ c. melted butter
½ c. raisins
2 eggs
½ tsp. salt
1 tsp. vanilla or
¼ tsp. spice
1¼ c. currants

Method.—Soak bread crumbs in milk, let cool, add the sugar, butter, eggs slightly beaten, salt and flavoring, and the raisins and currants. Bake 1 hour in a buttered dish in a slow oven as for custards. Do not use outside crusts.

(*Basis for* 2, ⅛ *rule.*)

3. Queen's Pudding

Method.—Spread plain Bread Pudding with currant or plum jelly and then add a meringue, as for Lemon Pie. Set in oven to brown.

4. Apple Tapioca

1 c. Pearl or Minute tapioca
2 c. cold water
2½ c. boiling water
½ tsp. salt
8 sour apples
½ c. sugar

Method.—Soak the tapioca in cold water an hour or more, drain, and add the boiling water and salt. Cook in double boiler until transparent. Core, pare, and slice the

apples, put in buttered baking-dish, cover with sugar, then with tapioca. Bake in a moderate oven until the apples are done. Serve with sugar and cream. Minute tapioca does not require soaking.

(*Basis for 2, ⅛ rule.*)

5. Date Pudding

2 eggs
½ c. sugar
3 hp. tsp. flour
1 tsp. baking powder
1 lb. dates
1 c. walnuts
1 c. whipped cream

Method.—Beat eggs separately until very light; add sugar to the beaten yolks; cut the dates and walnuts up fine, flour thoroughly, and add to the egg mixture. Fold in lightly the remainder of the flour, the stiffly beaten whites of the eggs, and the baking powder. Bake in a moderate oven ½ hour, and as soon as taken from the oven pour over it the whipped cream. Serve while hot.

6. Snow Ball Pudding

⅓ c. butter
½ c. sugar
1 c. flour
½ c. cornstarch
3 tsp. baking powder
¼ c. milk
4 eggs (whites)

Method.—Cream the butter, add the sugar. Sift the dry ingredients three times, add to the butter mixture alternately with the milk to keep an even consistency. Fold in the beaten whites, put all in greased molds, steam 1 hour. Roll in powdered sugar and serve hot with Berry Sauce. Makes 12 cups.

7. Plain Steamed Pudding

1 c. molasses
1 c. warm water
1 c. chopped raisins
1 egg
2½ c. flour
1 tsp. soda

Method.—Sift the soda with the flour, clean and chop the raisins, and add the flour. Beat the egg, add the warm water and molasses. Combine wet mixture with

dry. Put in buttered molds and steam 2½ hours. This is less expensive than suet pudding.

8. Plain Sauce

1 c. brown sugar
3 tbsp. butter
1 tbsp. flour
1 c. water

Method.—Boil all together until thick, like sirup. Add juice of 1 lemon for a sour sauce.

(*Basis for 2 girls, ¼ rule.*)

9. Berry Sauce

½ c. butter
1½ c. powdered sugar
1 egg yolk
1 c. mashed berries

Method.—Cream the butter, add sugar and cream, then the beaten egg yolk, and berries.

10. Hard Sauce

¼ c. butter
1 c. powdered sugar
⅔ tsp. vanilla
½ tsp. lemon extract

Method.—Cream the butter, add the sugar gradually, add the vanilla, and work to keep sauce creamy. Beat until light and creamy. Set in ice box to harden. Serve cold.

11. Foamy Sauce

¼ c. hot milk
1 c. powdered sugar
2 egg whites
1 tsp. vanilla

Method.—Beat whites stiff and dry, add sugar gradually, beat hard, add the hot milk and vanilla, beat with Dover beater 2 minutes. Serve at once.

12. Chocolate Sauce

1½ c. water
½ c. sugar
6 tbsp. grated chocolate
½ tsp. vanilla
1 tbsp. cornstarch
½ c. cold water
Pinch of salt

Method.—Boil sugar and water 4 to 5 minutes to make a sirup. Mix chocolate, starch, and ½ cup cold water; add the salt, then the hot sirup, and cook 3 minutes. Flavor, and serve hot.

LESSON 22

COLD DESSERTS

General review.

APPLICATION

1. Floating Island

1½ c. scalding milk	⅛ tsp. salt
3 eggs (yolks)	3 egg whites
¼ c. sugar	½ tsp. vanilla

Method.—Scald the milk, beat the whites until stiff and dry. Fold in 2 tbsp. sugar, and carefully cook whites in the hot milk 2 or 3 minutes. Remove them with a large spoon to a serving dish. Make a custard of the other ingredients, the same as boiled custard. Cook until it coats the spoon. Remove at once, add the flavoring, and pour around the cooked whites. Serve cold.

(*Basis for 2 girls, ⅓ rule.*)

2. Chocolate Cream Pudding

2 c. scalded milk	⅓ c. cold milk
5 tbsp. cornstarch	1½ sq. Baker's chocolate
½ c. sugar	3 tbsp. hot water
¼ tsp. salt	Whites 3 eggs
	1 tsp. vanilla

Method.—Mix the cornstarch, sugar, and salt, add the cold milk, stir thoroughly, and then add to the scalded milk. Cook in a double boiler 8 to 10 minutes, stirring constantly until custard thickens. Melt the chocolate in the hot water, stir until smooth, and then add to the mixture. Add the stiffly beaten whites and vanilla. Mold, chill, and serve.

(*Basis for 2, ⅓ rule.*)

3. Prune Whip

2 c. prunes	½ c. sugar
2 egg whites	1 tsp. lemon juice

Method.—Pick over and wash the prunes well, and let soak several hours in cold water to cover them. Cook in the same water until soft, remove the stones and rub the prunes through a strainer. Add the sugar, and cook 5 minutes to the consistency of marmalade. Beat the whites until stiff, add the prune mixture when cold, together with the lemon juice. Pile lightly in a buttered pudding dish and bake in a slow oven about 15 or 20 minutes. Serve cold with a boiled custard.

(*Basis for 2 girls, ⅛ rule.*)

4. Cornstarch Pudding

2 tbsp. cornstarch	2 eggs
1 qt. milk	1 tsp. butter
4 tbsp. sugar	Pinch salt

Method.—Mix the cornstarch with a small amount of milk and stir until a smooth paste. Heat the remainder of the milk in a double boiler. When scalded, add the hot milk to the paste mixture. Add the sugar and salt. Stir till the sugar is dissolved. Then pour slowly into the well beaten eggs. Return to the boiler and cook a few minutes until the mixture thickens, stirring constantly. Cool and add the flavoring, turn into molds, and serve cold with boiled custard, cream, or chocolate sauce.

LESSON 23

SANDWICHES

SANDWICHES form the basis of most lunches, whether it is the simple lunch put up for the school girl or the more elaborate picnic basket.

Materials for Sandwiches.—*Bread* to cut well must be at least a day old, when it makes the best sandwiches. Some delicious sandwiches, however, may be made with new bread. The kinds of bread used are white, brown, rye, whole wheat, corn or nut bread, or a combination of two or more.

The *butter*, to spread more easily and evenly, must be creamed, as in cake-making.

The *fillings* used determine the kind of sandwich, and a great variety is made from cooked (warm or cold) meat, fish, fresh greens, eggs, nuts, cheese, fruits, pickles, and jellies. Mayonnaise and cooked salad dressings are used to combine many of the materials used for fillings.

Shapes.—Sandwiches are made in a variety of shapes and cut very thin. Those made for picnics or a child's lunch are best made of bread cut about ¼ inch thick and cut in squares, triangles, oblongs, or circles, with substantial fillings.

For afternoon teas, slices of bread are cut not over ⅛ inch thick with a sharp knife, and the slices are then cut into different shapes with fancy cutters. The sweet fillings, like jellies and marmalades, are best adapted to serve at small teas.

Methods of Making.—Cut the bread for sandwiches with a sharp knife and make all slices of uniform thinness.

Remove the crust of the bread and spread each slice with the creamed butter before cutting. If the sandwiches are to be cut with fancy cutters, it is best to shape before

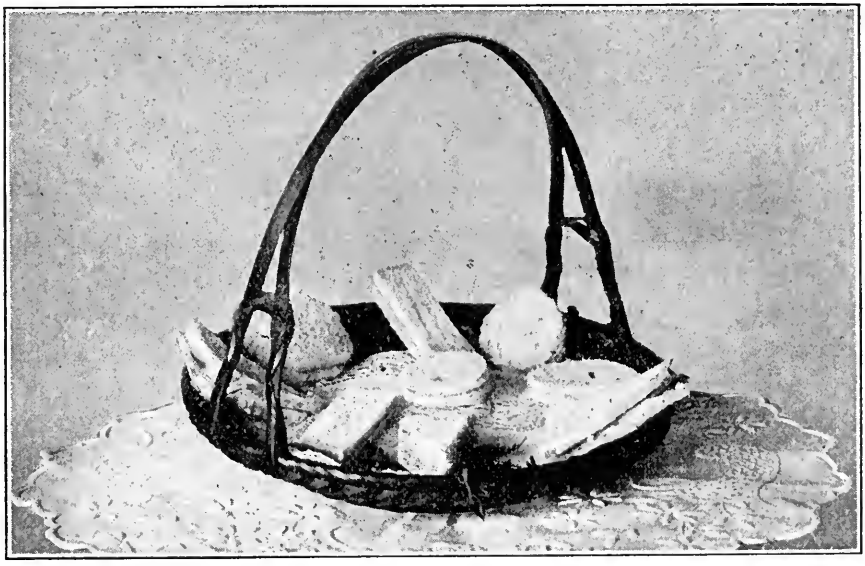

Fig. 40. Sandwiches, showing various shapes.

spreading, in order not to waste any butter. Spread half of the number of slices with the filling to be used, and fit the remaining slices on top.

To keep sandwiches moist when they are prepared several hours before they are served, wrap them in a damp napkin until ready to use, or wrap them in paraffin paper. Keep in a cool place.

Serving.—Serve sandwiches piled neatly on a doily on a plate or basket, garnished with parsley, lemon, celery tips or nasturtium leaves or blossoms.

Suggestions for Sandwiches.—Many dainty and delicious combinations are possible in sandwiches. The following are suggested:—

1. Equal parts of finely cut nuts and grated cheese with salad dressing.
2. Equal parts of grated cheese and olives cut fine mixed with mayonnaise.
3. Equal parts of cream cheese and pimento.
4. Ham, veal, or sweet breads sliced thin or minced fine with boiled egg cut fine.
5. Beef or tongue chopped fine with Worcestershire or horseradish sauce.
6. Raisins and nuts chopped fine and moistened with grape juice.
7. Nasturtium blossoms and stems and bread and butter packed in a box over night to perfume the bread. Garnish with fresh blossoms.
8. Crushed maple sugar with thick cream with whole-wheat bread, or nut bread.
9. Marmalade and chopped nuts on white bread or sponge drops.
10. Sardines (split and boned), lemon juice and paprika.
11. Peanuts chopped and salted with salad dressing, with white or wholewheat nut bread.
12. Rye bread, chives, and Swiss cheese.
13. Cut fresh bread while warm, spread with a sweet mixture, roll up and tie with ribbon.
14. Chopped green peppers with mayonnaise dressing.
15. Fresh crisp lettuce with mayonnaise dressing.
16. Cold chicken or lobster, chopped, seasoned, and moistened with lemon juice or salad dressing.
17. Preserved canton ginger in thin slices with plain bread and butter.
18. White bread, cold chicken, lettuce, slice ripe tomato.
19. Alternate about 6 layers of white and graham bread. Use nut or fruit filling and slice across.
20. ⅓ cup. chopped dates, ⅔ chopped apple, salad dressing; cut in different shapes.

Hot Sandwiches

21. Chicken liver with brown sauce and toast.
22. Brown bread, hot fried oysters, and Tartar sauce.
23. Clubhouse,—freshly made toast, lettuce, chicken, and hot bacon with mayonnaise.
24. Caviar, onion juice, lemon juice, with rounds of toast.
25. Combination,—freshly-made toast, chicken, tongue, bacon, fresh tomato and lettuce, with mayonnaise dressing.

APPLICATION

Demonstrate cutting bread thin and in fancy shapes.

1. Egg Sandwich

12 slices of bread
6 egg yolks, hard-boiled
1 tsp. salt
2 tbsp. melted butter

Method.—Mash the hard-boiled yolks through a strainer, season with salt, and moisten with the melted butter to right consistency to spread. Cut and trim the bread to the shape desired, spread half pieces with mixture, cover with the other half of bread. Boiled dressing may be used with the mixture.

(*Basis for 2 girls, ⅙ rule.*)

2. Chopped Meat Sandwich

Method.—Chop remnants of cold veal, beef, pork, or fowl; put through a meat cutter, moisten with rich meat stock; season with salt, pepper, celery salt and salad dressing. Spread on bread.

3. Raw Beef Sandwich

Method.—Scrape beef, cut from the round, using a silver fork. Scrape first on one side and then on the other to remove the soft part of the meat. Season with salt and a very small amount of pepper. Spread between thin slices of bread. This may be toasted to a delicate brown on both sides.

(*Basis for 2 girls, 2 slices of bread.*)

LESSON 24

FROZEN MIXTURES—ICES

Classes of Frozen Mixtures.—There are two general classes of frozen mixtures made in a freezer; namely, ices and ice creams. By varying the ingredients many different varieties may be produced in each class.

Ices are frozen mixtures of fruit juice, water, and sugar, with or without eggs. They are named from the kind of fruit juice used for flavoring. Ices include the following frozen mixtures:—

1. *Water ice*, which is made from fruit juice diluted with water, sweetened, and frozen quite firm. Water ice is served principally with the meat course at dinners.

2. *Frappé* is a water ice, half frozen and of granular consistency obtained by using an equal quantity of salt and ice in freezing.

3. *Punch* is a frappé with the addition of wines, fruit, or charged water.

4. *Sherbet* is made by adding either a little gelatin or the beaten whites of eggs to water ice. When eggs are used, they are added when the mixture is nearly frozen, and the freezing is continued until the mixture is firm and will hold its shape when served.

5. *Milk sherbet* is made by substituting milk for water in water ice. Care must be taken to thoroughly dissolve the sugar in the fruit juice before adding the milk, to prevent the mixture from curdling.

Sherbets are richer than water ices, and are served for desserts, like ice cream.

The Freezing Mixture.—Ice and salt form a freezing mixture. The salt thaws the ice, consuming heat, and makes a brine several degrees below the freezing point. This draws the heat from the contents of the metal can and causes the freezing. The smaller the pieces of ice and the more salt used, the more rapidly the mixture freezes. If too much salt is used, the frozen mixture has a coarse, granular consistency, as in frappé. One part of salt to three parts of ice freezes a smooth, fine-grained cream mixture. Equal parts of salt and ice freeze sherbets and water ice to the right consistency.

Preparing the Ice.—Pound the ice in a burlap bag with a wooden mallet or an ax until it is in small pieces of about uniform size. Large pieces may interfere with the smooth turning of the freezer. Prepare enough ice to more than fill the freezer, and have plenty to pack the can in until time to serve.

The Freezer.—A satisfactory freezer is one that is strongly built, that turns easily, and that is free from rust. If a freezer is not accessible, one may be made from a tin can or pail together with a wooden bucket or tub for the cracked ice. The can must be turned constantly during the freezing process the same as with a freezer. Owing to the absence of a dasher the mixture freezes to the sides of the pail quickly and must be scraped down frequently to insure a more even consistency to the frozen mixture.

General Directions for Freezing.—*Adjustment.*—Scald the can, cover, and dasher of the freezer thoroughly and then chill. Set the can in the tub part of the freezer and adjust the dasher. Pour the mixture into the can, filling it not over three-fourths full, as a mixture expands in freezing. Cover the can and adjust the crank. Be sure that the can revolves with the crank.

Packing.—Fill the space around the can with alternate layers of ice and rock salt until the ice comes up nearly to the top of the can. Turn the crank occasionally to make sure the can turns and to pack the ice and salt closely.

Freezing.—Turn the crank of the freezer steadily and slowly, so as to expose as much surface to the cold as possible. If the ice melts rapidly, add more ice and salt to keep the bucket well filled above the height of the frozen mixture. The icy brine aids in the freezing and may be left in the freezer, unless it comes up so high that there is danger of its getting into the can. When the freezer turns very hard the mixture is sufficiently frozen.

Packing after Freezing.—After the mixture is frozen, draw off the water through a little hole in the side of the bucket. Wipe off the cover of the can to avoid getting any salt inside, and carefully and quickly remove the dasher. Scrape the cream down from the sides of the can and pack down well with a spoon. Put the cover on the can and fit a cork into the hole on top. Pack ice and salt around the can and on the top and throw a heavy piece of carpet or a blanket over it all to keep in the cold and exclude the heat. Frozen mixtures improve by standing at least an hour.

Use of Frozen Dishes.—Frozen dishes are for the most part highly nutritious, cooling, refreshing, and attractive desserts that may be used for luncheons, dinners and afternoon or evening entertainments any time of the year. They are especially suitable during hot weather, and are of inestimable value for invalids. Ices and sherbets are quite often served during a dinner with the heavy meat course.

APPLICATION

1. Lemon Ice

4 c. water	2 c. sugar	¾ c. lemon juice

Method.—Boil sugar and water to a sirup (about 20 minutes), add lemon juice, cool, strain, and freeze.

2. Orange Ice

4 c. water
2 c. sugar
¼ c. lemon juice
Grated rind of 2 oranges
2 c. orange juice

Method.—Same as Lemon Ice; add fruit juice to sirup, cool, strain, and freeze.

3. Orange Milk Sherbet

4 oranges
4 lemons
4¼ c. sugar
4 pts. milk

Method.—Beat orange and lemon juice and sugar together until sugar is dissolved. Add the milk quickly and freeze at once.

(*Basis for class, full rule.*)

4. Three-of-a-Kind Sherbet

3 oranges
3 lemons
3 bananas
3 c. sugar
3 c. water
3 egg whites

Method.—Prepare juice from oranges and lemons, mash bananas, put all through a strainer, add the water and sugar, and stir constantly until dissolved. Put into freezer and freeze until the consistency of mush, then open the top carefully and quickly and stir in the egg whites beaten stiff. Repack and finish freezing.

(*Basis for class, full rule.*)

5. Sherbets (with gelatin)

1 tbsp. gelatin
½ c. cold water
Fruit juice
½ c. boiling water
1 c. sugar
1 c. cold water

The fruit juice for this recipe may be any of the following:—

Juice 6 oranges
Juice 6 lemons
1 pt. fresh pineapple
1 pt. raspberry or strawberry

Method.—Soak the gelatin in ½ cup cold water 20 minutes. Add the boiling water, stirring until dissolved. Add the sugar and the rest of the cold water, together with the fruit juice to be used. Freeze as any other ice.

LESSON 25

FROZEN MIXTURES—ICE CREAMS

Ice creams are mixtures of cream, sugar, and flavoring, and frozen to a firm consistency in a freezer. Being composed mainly of cream, they are richer in nutrients than the ices. Ice creams are used extensively for desserts.

Classes.—Many variations of ice cream may be made from the same foundation, by simply varying the flavoring and by the addition of fruits or nuts. The foundations of all ice creams, however, are of two classes, as follows:—

Fig. 41. Ice cream.

1. Those made with all cream, sweetened and flavored.

2. Those made with a custard (milk, eggs) and cream, sweetened and flavored.

Ice creams made with custards are not as expensive or as rich in food value as those made of all cream, and are commonly spoken of as "plain ice cream."

Fruit ice cream is made by adding crushed and sweetened fruit to the foundation rule for ice cream. The amount of sugar to be used depends upon the acidity of the fruit.

Fruits best adapted to ice creams are pineapple, peach, apricot, strawberry, raspberry, cranberry, cherry, currant, and all candied fruits.

Nut ice creams are made by adding chopped nuts to an ice cream rule, and any of the following nuts may be used: walnuts, pecans, almonds, filberts, chestnuts, peanuts, and pistachio.

Frozen puddings are made with any ice cream rule by adding plenty of fruit, nuts, preserved or candied fruits, or macaroons, etc., together with flavoring, such as maraschino, and freezing the mixture the same as ice cream.

Frozen puddings are sometimes packed in ice and salt for several hours, and are frozen without stirring.

Frozen Mixtures Not Stirred.—Some mixtures frozen without stirring are:—

Mousse is made of the whip of heavy cream, sweetened, flavored, and packed in a mold in ice and salt (1 part salt, 2 parts ice) for 3 or 4 hours.

Parfait is made of cream, sugar, egg yolks, flavoring, with or without the addition of fruit or nuts. The mixture is packed in a mold and set in ice and salt for 2 or 3 hours. Owing to the presence of egg yolks, it does not require as long a time for freezing as mousse.

Cream.—The quality of cream depends to some extent upon the animal from which it is derived and the manner of feeding, but largely upon the care given the milk and cream. The fat globules in the milk rise to the top when the milk stands several hours, or they are separated out by putting the fresh milk through a separator. Separator cream may be kept longer, since it is taken from fresh milk, while cream formed by allowing the milk to stand is usually from 12 to 24 hours old.

Cream may be separated thick or thin, and for commercial purposes is designated as "thin" and "double" cream, according to its thickness. Thin cream, containing from 18 to 25 per cent fat, may be used for ice cream, with or without a custard foundation. Double cream, usually containing about 40 per cent fat, is very thick, and is best for whipping. This sells for 60 cents a quart, and if used for ice cream must be greatly reduced by milk or the action of the freezer is likely to produce butter. Condensed milk is sometimes used for ice cream, but it must be reduced with water.

Custards are mixtures of milk, sugar, flavoring, and eggs. Flour or cornstarch may be substituted as thickening in place of eggs, but requires thorough cooking and does not make as rich a custard. An ice cream with a custard foundation does not require as much cream as one without custard. Custards or any mixture that is frozen requires about twice as much sugar to sweeten as those not frozen.

To make fancy shapes or bricks of ice cream, put the molds where they will get ice cold; then put in the ice cream by spoonfuls. Pack the mixture in solidly and fill the molds so full that when the cover is put on every part of the mold is filled. Two or more kinds of ice cream may be combined in one mold by packing them in layers. This makes what is called Neapolitan ice cream. A water ice may also be combined with ice cream in the same way. Cover the mold with oiled paper or wrap with cloth. Pack in salt and ice, using 1 part of salt to 4 parts of ice, and let stand an hour or two.

To remove ice cream from the mold, remove the mold from the packing, take off the cover, and let stand a minute or two. Run a knife around the inside of the mold, if it is regular in shape, invert over a serving dish or platter, and

the cream will slip out. If it does not come out easily, dip the mold into warm water and out at once, or wipe it with a cloth wrung out of hot water.

APPLICATION

1. Vanilla Ice Cream (custard foundation)

2 c. scalded milk
1 tsp. flour
1 c. sugar
1 egg
⅛ tsp. salt
1 qt. thin cream
2 tsp. vanilla

Method.—Mix flour, sugar, and salt, add the egg slightly beaten, and then the scalded milk gradually. Cook over hot water in a double boiler for 15 to 20 minutes, stirring constantly at first. Remove from the fire, cool, add the cream and flavoring, strain, and freeze. If custard has a curdled appearance it will disappear in the freezing. Serve with Chocolate Sauce. (See Lesson 21, page 279.)

(*Basis for class, whole rule.*)

2. Vanilla Ice Cream

1 qt. thin cream
1 c. sugar
1 pinch of salt
1½ tsp. vanilla

Method.—Add the sugar, salt, and vanilla to the cream, and freeze.

3. Chocolate Ice Cream

Vanilla Ice Cream rule plus
4 oz. bitter chocolate
1 c. water

Method.—Boil chocolate and water 5 minutes, and add to vanilla ice cream just before freezing.

4. Caramel Ice Cream

Method.—Same as Vanilla Ice Cream, adding 1½ cupfuls of caramelized sugar. Then freeze.

To caramelize sugar, melt sugar in an omelet pan slowly, stirring constantly until melted and heated to a rich brown color. Then add slowly to hot custard.

5. Strawberry Ice Cream

3 pts. thin cream
2 boxes berries
2 c. sugar
Pinch of salt

Method.—Wash and hull the berries, cover with sugar, and let stand 2 hours. Mash, and press through a fine strainer, add the salt and cream, and freeze. Red raspberries may be substituted for strawberries.

6. Peppermint Cream

9 sticks red and white peppermint candy
1 quart thin cream.

Method.—Heat the cream in a double boiler, put candy in, and let dissolve. This takes some time; when thoroughly dissolved, freeze. The candy colors, sweetens, and flavors the cream.

LESSON 26

FROZEN DESSERTS (Continued)

To Whip Cream.—Thoroughly chill the cream before whipping. Put cream into a deep bowl and set bowl in a pan of cracked ice. Add a little water to the ice,—it chills the cream more thoroughly. Dilute heavy, double cream about one-third its bulk with milk; undiluted heavy cream will turn to butter if beaten a minute too long.

Use a Dover beater or egg whisk to beat with. Cover the top of the bowl with a paper to keep cream from spattering, making a hole in the center for the beater and weighting the corners of the paper under the bowl. A cream whip or churn is suitable for beating *thin cream*, and is also used in a bowl set in cracked ice.

The first whip of cream which appears on the top is filled with large air bubbles, which break easily. This is not good to use. Stir it into the cream and continue beating. When the cream beats up thick, remove the top whip by spoonfuls as fast as it forms and put into a strainer over a bowl. The thin cream drains off and may be put back into the bowl to be whipped. The thick whip is ready for use. Continue until all the cream possible is thick. Cream about trebles its bulk in whipping.

A charlotte is a combination of cream and gelatin.

APPLICATION

1. Charlotte Russe

1 tbsp. granulated gelatin
¼ c. cold water
⅓ c. scalded cream
⅓ c. powdered sugar
3½ c. thin cream whip
1½ tsp. vanilla
6 or 8 lady fingers

Method.—Soak gelatin in cold water, add scalded cream,

stir until it dissolves, strain into a bowl, add the sugar and flavoring. Set the bowl in ice water, stir constantly until it begins to thicken; then fold in whip from cream, adding about one-third at a time. Line a mold with lady fingers, placing on end side by side ½ inch apart with the crust side out. Pack the mold with the mixture, and chill. May be made in individual molds.

(*Basis for* 2, ⅓ *rule.*)

2. Pineapple or Strawberry Charlottes

Method.—Pineapple and strawberry charlottes are made by adding 1 cup pineapple pulp and juice and grated rind of half a lemon, or 2 cups mashed strawberries and more sugar.

3. Bavarian Cream

1 pt. cream (whipped)	1 tsp. vanilla
1 pt. of thin cream or milk	Pinch of salt
½ c. sugar	2 tbsp. granulated gelatin
Yolks of 4 eggs	½ c. water

Method.—Whip the pint of cream and set aside to drain. Scald the thin cream or milk, add slowly to beaten egg yolks, add the sugar and salt. Return to fire a moment to set egg, remove as soon as it begins to thicken, add the soaked gelatin and flavoring. Stir until the gelatin has dissolved and then pour through a sieve. When cold fold in the whip of the cream, turn into a wet mold, and chill.

Pineapple or *strawberries* may be used to vary the flavor and to garnish. Line the mold with large fresh strawberries cut in halves, or use the grated pineapple and juice in place of the thin cream.

4. Neapolitan Mousse

1 qt. cream	2 tbsp. granulated gelatin
½ c. maraschino sirup	4 tbsp. milk
½ c. candied fruit, cut fine	1 sc. c. powdered sugar

Method.—Whip the cream, drain in a strainer. Use only whip. Soften the gelatin in the milk, dissolve by set-

ting bowl in boiling water, strain into a bowl, add powdered sugar and flavoring. Fold in the whip from the cream carefully, and the candied fruit, cut fine and softened in the maraschino sirup. Pack closely in a wet mold, cover tight, bind with buttered cloth. Pack in ice 3 or 4 hours.

5. Maple Parfait

4 eggs	1 pt. cream
1 c. maple syrup	Pinch of salt

Method.—Cook egg yolks and syrup together and add salt. Cool the mixture. Beat the cream and add to the egg mixture. Add the stiffly beaten egg whites and pack in salt and ice for three hours.

6. Bavarian Cream (without custard foundation)

½ c. fruit juice	1 tsp. gelatine
½ c. lemon juice	1 tbsp. cold water
⅓ c. sugar	2 eggs

Method.—Mix the fruit juice, lemon juice, and sugar with the egg yolks. Put in a saucepan and cook over a slow fire, stirring constantly until the mixture thickens. Remove from fire, add the soaked gelatine, and pour the mixture over the whites of eggs beaten stiff. Set in a pan of ice and beat until the mixture holds its shape. Turn into one large mold and chill. Any fruit juice may be used.

LESSON 27

TABLE SERVICE AND ETIQUETTE

The dining room should be a pleasant room located near the kitchen, with a butler's or china pantry adjoining. The butler's pantry is used for serving and for the preparation of salads, bread and butter, cakes, etc.

The decorations in the dining room should be pleasing, harmonious, and quiet in tone, as well as simple, and the pictures suitable. The light must be good, yet not too strong, and the temperature about 70° F.

The furniture of the dining room includes a china closet, chairs, table, buffets or sideboards, and a serving table.

The buffet or *sideboard* contains the silver and linen, and should always be covered with a white linen cover.

The serving table is also covered, and is used for dishes containing food.

The table may be round, oblong, or square, according to the shape of the room and the size of the family. It occupies the center of the room. The place for the hostess is opposite the pantry door, through which the waitress enters. In this way the hostess can direct the movements of the waitress in case of emergency without attracting the attention of the guests.

The chairs are arranged around the table with the front edge of the seat just touching the cloth. Place only one chair at each end of the table, for host and hostess, opposite each other, and space the chairs evenly for the guests.

Table Appointments.—The table is nearly always covered with a tablecloth, but doilies are pretty used on a well-polished table in place of a cloth.

A pad or service cloth must be used under a tablecloth next to the table. It deadens the sound and gives the linen a firmer and better appearance, as well as keeps the table from becoming marred. Asbestos pads can be purchased to fit the top of the table, or use heavy table felt or Canton flannel.

Linens must be absolutely spotless, carefully laundered, and plainly folded. Use pure linen or damask cloths and napkins of as good quality as can be afforded. A coarse linen is better than a mixture of cotton and linen. The best time to buy linens is in January, for the latest patterns and summer bleached linen are imported in December and there is a better selection at that time. Good standard patterns are the best to buy, but most patterns can be duplicated within two years. The Shamrock, Irish linen, denotes the best qualities obtainable. These are hand woven, and the strict British laws compel the manufacturers to state if hand woven on the margin of all linen, and to produce the same measurements for their goods. As a result Irish linens are dependable. Avoid linen that is stiff and that crackles when bent, as it has been starched to give it a better appearance.

Good damask has an elastic texture. German linens are very desirable and come in good patterns, but are not as pure white as the Irish linens. Table cloths that come in patterns are more satisfactory than those that come by the yard, and there is but a slight difference in the prices of the two.

Napkins to match should be bought with each tablecloth. Avoid extreme sizes. The standard sizes for dinner napkins run from 22 to 27 inches.

To Launder Table Linen.—Heavy damask requires no stiffening, and must be ironed while wet. Thin tablecloths

remain fresh longer if slightly stiffened with a very thin starch and ironed quite wet.

Avoid many folds in ironing a tablecloth; make one lengthwise through the center and roll the cloth on a roller, or fold carefully without creasing.

Napkins are folded perfectly true at the corners and are ironed quite damp. Fold over half way, then over again the same way, then fold end to end, and again to form a square, leaving the corners of the napkin folded out.

To spread the tablecloth, put the single crease of the cloth directly in the center of the table, lengthwise, with the fold straight with the table. Crease the cloth slightly around the edge of the table that it may drape smoothly. The cloth should be wide enough to hang over the edges of the table a quarter of a yard.

A centerpiece of white linen either embroidered or trimmed with lace, is used in the center of the table.

A table reflector, or mirror, may be used as a basis for table decoration. On this place a basket or vase containing flowers or ferns. If flowers or ferns are not accessible, a candelabra or a plant may be used. Avoid too high a basket or vase of flowers. Select flowers free from heavy odors, and those that harmonize with the coloring of the dining room.

Dishes and Silver.—Use the best china that can be afforded. White china or china having a delicate design is the best. Never use two kinds for the same course, but different patterns may be used for different courses. Select good styles, and if only a limited number of dishes can be had, buy from open stock and get dishes that may be used for the greatest number of purposes. Knives and forks should be of medium size and of a simple pattern

that cleans easily. Plain silver is harder to take care of than that having a simple pattern.

Setting the Table.—A "cover" marks the individual place and includes all the silver for one person. From 20 to 25 inches of length and 15 or 16 inches of depth are allowed for each cover. Plates, silver, and napkins are placed one inch from the edge of the table in the order of service, the silver for the first course being farthest from

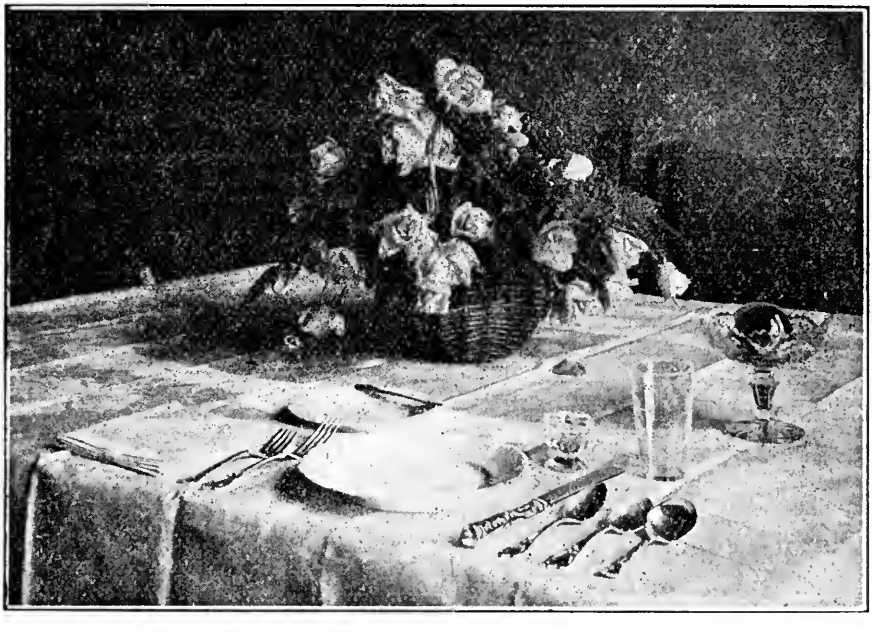

Fig. 42. The proper arrangement for a cover.

the plate. A service plate marks the center of each cover, and is placed on the table at the beginning of a meal. Place the knives to the right of the service plate with the cutting edge turned towards the plate; then place the spoons beside them, in the order of service. The number of pieces depends upon the meal to be served. Place the forks to the left of the service plate, tines up, and the napkin

to the left of the forks, with the corners of the napkin towards the edge of the plate and the lower edge in a straight line with the row of silver and plate.

The bread and butter plates are placed at the left, at the top of the forks. Put the butter spreaders on the plates with the handle convenient to the right hand. The tumbler for water place at the right-hand side, at the end of the knives, and the individual salts at the top of the cover in the center.

The uniform of a waitress includes a neat, simple wash dress, either black or white, and a plain white apron. A small cap may or may not be worn. A waitress must be neat, quick, careful, quiet, clean, and observing in her work.

The duties of a waitress include the care of the dining room and room from which the food is served, also the care of the silver, cut glass, fine china, and linens. She must prepare the salads, butter balls, beverages, and cut the bread. She must keep hot things hot and cold things cold.

Styles of Serving.—There are two ways of serving meals: (1) *à la russe* or *Russian style*, where only flowers and perhaps dessert are placed on the table at the beginning of the meal. The several courses are served from the side, each person helping himself when the dishes are passed; or the plates are served in the kitchen and placed before each guest. This style is best adapted to serving large numbers.

(2) The *English style* of serving is used at small dinner parties and in the home. The host carves and serves the meat and vegetables and the hostess serves the soup, salad, dessert, and coffee. Only one course appears on the table at a time. Bread, butter, pickles, and relishes are placed on the tables and passed by the waitress. The waitress also passes the plates and dishes served by the host and hostess.

Service without a Maid.—The average home can not afford a maid and many homemakers that can afford one prefer to do their own work. It is quite necessary that every girl should learn to do for herself and be able to assume the duties of cook, hostess and maid, easily and gracefully, whenever she chooses to do so.

Entertaining without a maid is more informal and necessarily more simple than when a maid is employed, but the charm of any home dinner lies in its being properly planned and served.

Successful entertaining in the home depends largely upon the hostess. She should be natural and appear at ease. When her work is well planned, so that she has no anxiety as to the outcome, she can be at ease. She should attempt only simple things at first until she gains confidence. Then practice will help her.

Rules for serving remain the same for all meals and at both the formal and informal occasions. Where there is no maid to attend to the wants of the guests at the table, much of the table service is performed at the table by the host and hostess and may be done very successfully and with added hospitality.

Rules for Serving without a Maid.—

1. Warm all dishes used for hot foods, and chill all dishes used for cold foods.

2. Fill water tumblers ¾ full, just before guests sit down. Keep the glasses filled.

3. Place butter on butter plates just before guests are seated, replenishing when necessary.

4. Use a round tray covered with a doily for serving and removing dishes.

5. Cut the bread just before serving, so that it will not dry out. Hot breads should be covered with a clean

folded napkin or linen square to keep them hot.

6. Be sure that all the silver is in place at each cover and at the host's and hostess' places for serving.

7. Have all dishes for each course ready for serving.

8. The hostess should put on a small white serving apron before announcing the meal if she must serve.

9. The hostess assigns each guest to his or her chair at table. Guests should take their places quietly.

10. Keep all hot dishes hot by keeping them in the oven with heat reduced

11. Leave nothing cooking which requires the attention of the hostess to make her uneasy.

12. Creamer and sugar with cups and saucers should be arranged on a large tray on the side table ready for the coffee pot. The tray should be set before the hostess at the time to serve the coffee.

13. Some other member of the family may have such duties as filling water glasses and serving vegetables.

14. Remove dishes containing food, one at a time first, in each course, then the soiled plates and silver of each cover in turn.

15. Remove everything pertaining to one course before serving the next.

16. Use a folded napkin and small tray to crumb the table with, if crumbing is desired.

17. Fill finger bowls ⅓ full of warm water. These should be ready on the serving table before announcing the meal

18. Make the conversation cheerful and interesting at table and one in which all may join.

19. The host and hostess sit at opposite ends of the table. The honor guest, if a woman, sits at the right of the host; if a man, at the right of the hostess.

Serving Breakfast without a Maid.—Before breakfast is announced the fruit and cereal courses should be on the table. Fruit may be in one large dish or basket, ready to be passed, or on small plates on the service plate at each cover. The tureen with cereal with individual dishes for serving should be at the hostess' place. Where fruit is handled with the fingers, a finger bowl is necessary. Individual ones may be set at the top of each cover before breakfast is announced, if fruit is on the plates, or on the plates and removed by each guest to the top of cover when fruit is passed and ready for the plate.

When the fruit course is finished, the cereal dish may be set on the service plate and the small fruit plate set above the cover to simplify the service. If preferred, the fruit plates may be passed to the hostess, who puts them on the serving cart or side table by her.

When the cereal is finished, dishes from both courses are removed to the kitchen. Bring in dishes of food to be served first and place at the top and side of the host's place. Then plates, in a pile, should be set in front of the host. The coffee service on the tray is moved to the hostess' place, the bread is brought in, and glasses refilled.

The host serves the plates, which are passed down the side of the table—never across. The hostess receives hers first, the guests next in turn.

Coffee cups are passed in the same manner. The hostess may use the cream and sugar for each one, if she knows their particular wants.

Serving the Dinner without a Maid.—Dinner without help must be simple and more informal than when help is available. Three courses are usually as much as can be managed successfully and are sufficient for the average dinner. These consist of soup, meat course, and dessert.

If a fourth course is desired for special occasions, either a fruit or fish cocktail may be served preceding the soup course; or a salad course may be served after the meat course. When a salad is served with the three-course dinner, it is a simple one served with the meat course.

Before dinner is announced the first course should be on the table at each cover. Soup is served in individual dishes set on the service plate and should be very hot when served so that it will not be too cool. Wafers may be served on the side of each soup dish or placed on one plate to be passed. Celery, olives, radishes and any accompaniment to the course must also be on the table.

The service plate is a large plate at each cover upon which the cocktail or soup dishes stand. It remains on the table until the meat course is served, being removed before the dinner plate is placed. For the home dinner it may be removed at the same time the soup plate is removed.

The meat platter is brought in first, followed by the vegetable dishes for the main course. The meat is set directly in front of the host at the top of the cover within easy reach. The plates, in a pile, are set in front of him.

The platter for the meat must always be large enough to make serving easy. For a large fowl an extra platter or plate may be of assistance in serving. Dressings and carved portions may be laid on it to make more room.

If a vegetable is served in small dishes, the hostess or some member of the family may serve it. The vegetable dish and small dishes are placed before the one whose duty it is to serve them.

If the salad is served with the meat course, the most attractive way is for the hostess to serve and dress each

plate. A large bowl with all the salad materials prettily arranged in separate groups, ready to be assembled on each salad plate, is placed before the hostess, together with the salad plates and dressing materials. The art of arranging the salad at table is soon mastered and adds a bit of charm to the home dinner which any hostess will welcome. The dressing may be served from an attractive bowl or a French dressing may be prepared at the table by the hostess. French dressing bottles are convenient and attractive.

Water glasses should be refilled between courses.

A second helping may be offered guests at the informal home dinner—never at a formal dinner. Do not insist on guests' taking a second helping, if they decline the first invitation.

When the course is finished by everyone the hostess rises and removes the dishes according to rules 14 and 15. Soiled dishes left in the dining room detract from the dessert course. It is always best to remove all dishes of preceding courses from the dining room before serving the dessert. Piling on a side table is not a time saver. One moving of dishes is best.

Crumbing is seldom necessary at informal dinners.

Desserts are best served at table by the hostess. The large bowl or plate with the dessert and individual dishes are set at the hostess' place—at the right side. The coffee tray service is set in front at the top.

The hostess then pours the coffee or tea, as the case may be, and the cream and sugar may be added by her or passed. The dessert is then served.

Finger bowls are seldom used for the informal dinner.

Serving the Luncheon or Supper without a Maid.—Luncheon or supper depends upon the time of day it is

served. If at noon, it is a luncheon; if at evening, a supper. It consists mainly of two courses, a hot dish with bread, beverage, and a simple dessert. If a hearty meal is desired, a cream soup or additional hot dish may be added.

The table setting is more simple than for dinner. A small cloth or doilies take the place of the dinner cloth.

The hostess serves, if the host is absent.

The hot dish usually consists of a left-over, casserole dish of two or more materials. Many attractive combinations may be developed. The service may be as dainty and attractive as the hostess desires.

Serve omelets or creamed dishes over toast on an attractive platter or chop plate.

Serve two hot foods on serving platter, one in the center, the other as a border, to economize dishes and lend attractiveness, as omelet with white sauce border, or border of peas, bean loaf with tomato sauce. Serve salads at table from attractive salad bowls and arrange individual plates attractively.

Serve the hot beverage with the main course. Some member of the family may pour it, if the hostess is busy serving the plates.

Have all dishes, food to be served, with beverage tray service on table when meal is announced.

Remove dishes of this course before serving dessert course. Desserts are always served at table for informal luncheons or suppers.

If a more elaborate meal is desired, a fruit cup or cream soup preceding the main course makes a pleasant addition. This is served in the same manner as at dinner.

Service with a Maid.—All rules for serving are practically the same, the main difference being that the host-

ess does not leave her place at table during a meal—and the waitress attends to the service of dishes in and out of the dining room and passing dishes to the guests in place of having dishes passed along at table.

The maid remains in the dining room while the guests are seated, and until each course is served completely. Dishes which admit of choice as rolls, jelly and olives, are passed by the waitress to the left of each guest in turn. The dish is held low and near the guest. Dishes to be placed on the table, as vegetables, coffee cup, are placed at the right of each guest.

Dishes are removed from the right, unless doing so necessitates reaching in front of a guest.

The hostess is always served first, the honor guest next.

A folded napkin or small tray is used under all dishes carried by the waitress.

Fruit courses should be on table as in service without a maid, when the meal is announced.

In the main course the waitress stands at the left side of the host when he is serving the plates. As one plate is served the waitress takes it and passes to the right of the hostess. She removes the service plates with the left hand and places the dinner plate with her right. The waitress then returns to the left of the host in time to receive the next plate served.

The order of serving guests is always the same, hostess, honor guest, and so on.

Bread and rolls are passed by waitress.

Salads may be served as a separate course from the pantry. If served at table the waitress places the plates for hostess at each cover. Desserts may be served at table or from the pantry, but the coffee is best served at table.

The formal dinner with a waitress consists of many courses, and is served between the hours of 6 and 8 P. M. The courses consist of (1) Fruit or oyster cocktail, (2) Clear stock soups and relishes, (3) Fish fillet, (4) Entree, (5) Meat course with one or two vegetables and an ice, (6) Salad, wafers, (7) Dessert—sherbet, mousse, cake, (8) Coffee, cheese, nuts or bonbons. Coffee is served clear at the last in small after-dinner cups.

If the Russian style of serving prevails, most dishes are served from the pantry and placed in front of each guest by the waitress. The meat course may also be served from the pantry, if many guests are present.

Formal luncheons are also served from the pantry by the waitress.

Table Etiquette and Hostess Courtesies.—

Invitations to dinner or luncheon should be made several days prior to the day of the engagement. An invitation should be accepted or declined as soon after the invitation as possible so that the hostess will know definitely and may plan accordingly.

If an invitation is accepted, only cases of illness or very urgent business should prevent keeping the engagement. Guests should be prompt in arriving about five to ten minutes before the hour named. To be late for a dinner or luncheon is a very grave offense for which there is seldom an excuse.

Courtesy. It shows culture to speak deliberately and quietly and avoid monopolizing the conversation. Try to be interested in the conversation of others.

After the dinner or luncheon is over guests should not be too hasty with their departure. To leave too abruptly is discourteous to the hostess. Remain at least half an hour, if necessity demands an early departure.

In taking leave of your host and hostess express your pleasure and appreciation of their invitation in a simple but sincere manner. Make all dinner calls within two weeks after the dinner engagement.

At the Table.—When invited into the dining room take your place at the back of the chair indicated by the hostess until she gives the sign to be seated. The gentlemen should assist in placing the chairs for the ladies at their right hand. The chairs, if properly placed, need not be pulled out before sitting down. Always sit down, and rise at the left side of your chair.

If uncertain what to do at any time during the meal, observe the hostess and do as she does.

In opening the napkin, do not lift it above the table, simply draw it off carefully and unfold half way and draw across the lap. If a bread stick or roll is folded in the napkin, place it on the service plate, in case there is no bread and butter plate. When the meal is ended simply lay the napkin up at the side of the plate, after the hostess disposes of hers. If a guest for more than one meal, fold the napkin neatly.

Sit erect at the table without leaning against the table, and keep the arms off the table.

Use of Silver.—Do not handle or play with the silver during the meal, or gesticulate with the knife or fork in speaking.

The silver is placed in order of serving with that to be used first at the outer edge of the cover. Remove and use them in this order.

In cutting, grasp the handles of the knife and fork firmly with the palm of the hands over each handle.

The knife is used only to cut with and to spread the bread. A small knife is often used for spreading butter.

The fork is used to hold food in place while cutting with the knife, to carry food to the mouth, and to cut any soft food which does not require a knife.

The spoon is used to convey soft food to the mouth; to stir the sugar into a beverage and to test the flavor and temperature. After testing, it should be removed from the cup and placed at the side on the saucer. Never let it remain in the cup. Also drink a beverage from the cup.

Usages.—To use the soup spoon, dip it away from you in filling the bowl and take all food from the side of the spoon, never from the tip.

Never put crackers or bread into the soup.

Avoid talking when any food is in the mouth. Keep lips closed while masticating food.

Eat quietly and chew all food thoroughly.

Do not raise food on the fork or spoon while talking.

Never scrape dishes or tip soup or dessert dishes to remove the last of the food.

Celery, wafers, olives, radishes and salted nuts are eaten from the fingers.

In eating green corn from the cob, break the cob into short lengths and convey to the mouth with one hand only.

Oranges and grape fruit are nearly always prepared in the kitchen to make serving easy. Large fruits, as apples, peaches and pears may be pared and cut in sections at the table and small fruits, as cherries, plums, grapes and berries on stems are conveyed to the mouth with the fingers.

In passing dishes take care not to let the fingers get over the edge of the dish. Use the handles when passing creamer and sugar bowl.

If you do not care for any food served, simply leave it on the plate untouched without any comment to draw attention to it.

Be careful about taking too hot food in the mouth. Wait until it cools.

Drink slowly and raise the glass with the right hand.

To use the finger bowl, dip the tips of the fingers of first one hand then the other lightly in the water and dry them on the napkin.

A second helping of food may be taken at the informal dinner if the host offers it but at the formal dinner the second helping is not offered.

In offering to serve any one or pass anything simply say, "May I help you?" or "Let me give you."

The personal appearance of hair, hands and dress must always be neat and clean before appearing at table. A man should never appear at table in his shirt sleeves.

True politeness should be the real guide for table etiquette and an unselfish thought for others means good manners at all times.

APPLICATION

1. Demonstrate kinds of linen and methods of folding.

2. Demonstrate placing a cover, setting a table for first course for breakfast and first course for dinner.

3. Practice serving, students taking part of waitress, of hostess and of host.

4. Give examples of table etiquette.

LESSON 28

DIETARIES—PLANNING MENUS

Some Points to Consider in Selecting Food.—In the planning of the meals, it is necessary to consider many things besides just the dishes that are to be served. The kinds, cost, and amount of nutrients contained in each dish must be carefully considered, together with the number, sex, age, and occupation of the persons for whom the food is provided.

All persons must have protein for the building and repair of body tissue, and fuel material for warmth and work. Individuals differ in the amounts and proportions they require, and even among those who are in good health there are many who are obliged to avoid certain kinds of food.

For guidance in the selection of food, nature provides us with instinct and taste, but we are apt to be influenced too much by taste and to overlook instinct and experience. We need also to acquire the knowledge of foods that science has made possible through the laboratory. When more food is eaten than is needed, the digestive organs are overtaxed or injured and much energy is wasted which might have been used to better account.

Food Requirements for Different Conditions.—Proportions vary greatly in the amount of nutrients required by persons of various age, sex, and activity. A young child needs less food than an older one, a man more than a woman, and all require more when at work than when at rest. The following table shows the comparative food requirements

of persons of different ages and occupations as compared with the needs of a man in full vigor at moderate work.

PROPORTIONATE FOOD REQUIREMENTS FOR DIFFERENT CONDITIONS

Man, full vigor, at moderate work	100
Man, full vigor, at hard work	120
Man, full vigor, at sedentary work	80
Woman, full vigor, at moderate work	80
Woman, full vigor, at hard labor	100
Woman, full vigor, at sedentary labor	70
Man or woman, old age	90
Man or woman, extreme old age	70 to 80
Boy, 15-16 years old	90
Boy, 13-14 years old	80
Boy, 12-13 years old	70
Boy, 10-11 years old	60
Girl, 15-16 years old	80
Girl, 13-14 years old	70
Girl, 10-12 years old	60
Child, 6- 9 years old	50
Child, 2- 5 years old	40
Child, under 2 years old	30

These figures illustrate the fact that there is an increase in food consumption from infancy until full vigor and that there is a decrease in old age. They also show that the amount of muscular work performed greatly affects the food requirement. Climate and season are other factors to be considered. In winter the energy requirement per day is greater by about 800 calories than in summer.

Heat Value of Food.—*A calorie** is the unit of measure in determining quantity of heat. It is used in designating the fuel value of a food, or the amount of heat that a given quantity of the food will produce in the body.

1 pound of protein yields 1820 calories.

1 pound of carbohydrates yields 1820 calories.

1 pound of fat yields 4084 calories, or 2¼ times as many calories as carbohydrates.

*The heat necessary to raise the temperature of 1 pound of water 4° F. equals 1 calorie.

The standard requirement per day has been estimated as follows:—

Man at light work.....2450 to 2800 calories
Man at moderate muscular work.....2800 to 3150 calories
Man at hard muscular work.....3150 to 4200 calories
Man at rest.....2100 to 2450 calories
A woman, .8 as much as a man

Since protein foods are indispensable in the building of muscular tissue, fats and carbohydrates should be supplied in the right proportion and quantity, so that the proteins will not be utilized as fuel. Fats and carbohydrates are more abundant and cheaper foods for fuel, and when oxidized leave waste substances that are easily eliminated from the body. Protein consumed for energy leaves a nitrogenous waste which necessitates additional work on the part of the excretory organs.

The approximate energy requirement of an average size man:

When sleeping, is .4 calorie per pound per hour.
When sitting, .6 calorie per pound per hour.
At moderate exercise 1.0 calorie per pound per hour.
At active exercise 2.0 calories per pound per hour.
At severe exercise 3.0 per pound per hour.

The Approximate Energy Requirement of a Child During Growth.

Age	Calories per pound per day	Total calories per day
First year	45	900
1-2 years	45-40	1200- 900
3-5 years	40-36	1500-1200
6-9 years	36-30	2000-1400
10-13 years	30-27	2200-1800
14-17 years	27-20	3000-2200

A diet, moderate in the amount of protein but consisting of plenty of fuel foods, is much the best for growth. Ten to fifteen calories in every hundred is sufficient to be derived from protein. A family requiring 12,000 calories per day should have 1,200 as the protein calories. The kind of protein food to be selected is also of great importance. The protein material should be varied in order to secure the different kinds needed for maintenance, growth and activity. Less meat should be used and the protein supplied by such foods as eggs, cheese, legumes, and whole wheat breads and cereals. Milk, being rich in calcium, is very essential to the growing child and should be used freely in the diet.

The nutritive ratio of foods is the proper ratio in which digestible protein should be taken in relation to the digestible fats and carbohydrates, so as to secure a diet which will produce the greatest efficiency at the least cost and waste. The nutritive ratio has been estimated by Atwater to be 1:6½, or 1 part protein to 6½ parts carbohydrates. The best proportion of fat to carbohydrates is 1:2½; that is, 2½ times as much carbohydrates as fat.

Ash Constituents. In addition to the consideration of the number of calories supplied the body by the proteins, carbohydrates and fats, the ash requirement is important in planning the dietary.

The ash which exists in the body consists mainly of phosphorus, iron, calcium, potassium, sodium, sulphur, magnesium and chlorine. All these mineral substances are necessary for the proper growth of the body, although no definite proportion of ash in the diet is required; but ash supplying foods must be freely used.

The following list of foods rich in ash material is given as an aid in menu planning.

PRINCIPAL ASH CONSTITUENTS OF FOODS

In the approximate order of their proportions

Iron	*Calcium*	*Phosphorus*
Fruits	**Fruits**	**Fruits**
Strawberries	Strawberries	Raspberries
Grapes	Lemons	Strawberries
Lemons	Oranges	Grapes
Dates	Raspberries	Peaches
Raisins	Figs	Figs
Figs		Currants
Prunes		Cherries
Vegetables	**Vegetables**	**Vegetables**
Spinach	Cauliflower	Spinach
Lettuce	Celery	Celery
Asparagus	Spinach	Lettuce
Beans—string	Lettuce	Cauliflower
Cabbage	Rhubarb	Cucumbers
Celery	Turnips	Asparagus
Radishes	Cabbage	Rhubarb
Peas	Beans—string	Radishes
Carrots	Asparagus	Turnips
Potatoes	Radishes	Parsnips
Nuts	**Nuts**	**Nuts**
Peanuts	Almonds	Peanuts
Chestnuts		Almonds
		Walnuts
Cereals	**Cereals**	**Cereals**
Wheat flour, Graham	Oatmeal	Wheat flour, Grah'm
Oatmeal	Bread, Graham	Rye flour
Bread–Whole wheat	Bread–Whole wheat	Oatmeal
Wheat flour–white	Bread—white	Bread—whole wheat
Barley, pearled		Barley, pearled
Meats	**Meats**	**Meats**
Beef, lean	Frog's flesh	Frog's flesh
Ham	Veal, lean	Beef, lean
	Beef, lean	Veal, lean
	Chicken	Chicken
		Ham
Fish	**Fish**	**Fish**
Salmon	Pike	Cod
Cod	Herring	Pike
Halibut	Haddock	Haddock

Dairy Products	**Dairy Products**	**Dairy Products**
Milk	Buttermilk	Buttermilk
	Cheese	Cheese
	Milk	Milk
Eggs	**Eggs**	**Eggs**
Yolk	Yolk	Yolk
Whole	Whole	Whole

From these tables various diets may also be arranged depending upon the particular case or the patient. For example, the anaemic patient would have a diet selected mainly from the foods containing iron and blood forming properties such as the following type of meal:

Menu

Spinach Soup Crackers
Beefsteak
Creamed Carrots Graham Bread and Butter
Lettuce Salad
Prune Whip Oatmeal Cookies

In order to obtain a working basis for the comparison of foods in menu making, a common unit of foods is necessary. For this purpose the Standard Portion, which is the amount of each food which yields 100 calories of energy in the body has been established.

For the proper working out of dietaries it is best to know what the standard portions or 100 calorie portions of many of the common foods are. Balanced meals come logically and easily when one thinks in 100 calorie portions, as, for example, 100 calories as one banana, or $\frac{5}{8}$ glass of milk, etc., instead of 100 calories of banana as 5 ounces.

Dietaries are made for an entire day or week, since it is not practical or necessary to have each meal balance. In some cases several days may not average up, but at least every week should meet the standard requirement.

TABLE OF APPROXIMATE 100 CALORIE PORTIONS

Foods	100 Calories Approx. Meas.	Wt. in oz.	Approx. No. of Cal. from Protein	Cost to be worked out by Students
Berries				
Blackberries	½ c.	6	9	
Blueberries	⅓ c.	4	3	
Cranberries	⅝ c.	7.5	3	
Currants	½ c.	6	10	
Strawberries	¾ c.	9	10	
Beverages				
Cocoa	2½ tbsp.	.7	17	
Chocolate	½ sq.	.5	8	
Breads				
Biscuits	1	2	14	
Boston brown	1 slice	1.5	9	
Graham bread	2 slices	1.5	14	
Graham crackers	2	.75	10	
Rolls	3	1.5	14	
Rye bread	1 large slice	1.5	14	
Soda crackers	2	.75	10	
Toast, white	2 small or 1 large	.8	10	
White bread	2 slices ½″ thick	1.5	14	
Whole wheat	2 slices	1.4	15.9	
Cake				
Chocolate layer	1 medium slice	1	7	
Cookies	2 medium	.75	6	
Doughnuts	½	.8	6	
Fruit Cake	1 small slice	1	6	
Gingerbread	1 serving	1	6	
Macaroons	2	.8	6.1	
Sponge	2 pieces	1	6	
Cereals				
Cornmeal, uncooked	3 tbsp.	1	10	
Cornflakes	½ c.	1	10	
Cream of wheat	½ c.	1	10	
Hominy	3 tbsp.	1	9.2	
Macaroni, uncooked	4 sticks	1	15	
Rice, uncooked	2 tbsp.	1	9.2	
Rolled oats, uncooked	1 tbsp.	1	16	
Shredded wheat	1 biscuit	1	12	
Cheese				
American	1½ in. cubes	.75	25	
Cheddar	1½ in. cubes	.75	24	
Cottage	½ c.	3.25	76	
Swiss	1½ in. cubes	.8	25.5	

Foods	100 Calories Approx. Meas.	Wt. in oz.	Approx. No. of Cal. from Protein	Cost to be worked out by Students
Desserts				
Apple Pie	1/12 of pie	1.25	4.8	
Cornstarch pudding	½ c.	1.5	11	
Chocolate cornstarch	1 serving	1	15	
Custard pie	1/12 of pie	2	10	
Gelatine jelly	4 tbsp.	1	98.3	
Lemon pie	1/12 of pie	1.5	5.8	
Mince pie	1/16 of pie	1.2	8	
Plain ice cream	1 serving	1.75	10	
Pumpkin pie	1/12 of pie	1.2	8	
Eggs	2 small	2.3	36	
Fats				
Butter	1 tbsp.	.5		
Cottonseed	1 tbsp.	.5		
Lard	1 tbsp.	.5		
Oleomargerine	1 tbsp.	.5		
Olive oil	1 tbsp.	.5		
Fish				
Bass	1 serving	4	80	
Codfish	¼ c.	7	90	
Halibut steak	1 serving	3	61.2	
Herring, smoked	1 whole	1.25	54	
Lobster	1 serving	4.25	86	
Oysters	5 medium size	4.9	48.5	
Salmon	1 serving	1.5	38	
White fish	1 serving	2.3	58	
Flour				
Cornmeal	3 tbsp.	1	10	
Buckwheat	3 tbsp.	1	7.5	
Graham	3 tbsp.	1	15	
Rye	3 tbsp.	1	8	
Wheat	3 tbsp.	1	12	
Whole wheat	3 tbsp.	1	15	
Fruits				
Apples	2 medium	6	2.7	
Apples, dried	4	1.25	3	
Apricots, dried	2	6.2	7.8	
Bananas	1	3.5	5.1	
Berries, (see list)				
Dates	4	1.25	3	
Figs, dried	1	1.1	5.2	
Lemons	3	4	5	
Oranges	1 large	8	9	
Olives	7	1.4	2	

Foods	100 Calories Approx. Meas.	Wt. in oz.	Approx. No. of Cal. from Protein	Cost to be worked out by Students
FRUITS—(Continued)				
Peaches, fresh	2 medium size	8	6	.....
Peaches, canned	1 serving	7	6	.....
Pears	3	6.2	6	.....
Pineapple, fresh	5 slices	8.1	3	.....
Pineapple, canned	1 serving	2.25	4	.....
Prunes	4	1.25	3	.....
Raisins	2 tbsp.	1	3	.....
Rhubarb, cooked	3¼ c.	15	3	.....
Meats				
Bacon	1 slice	.5	.7	.....
Beef, corned	1 serving	1.5	21	.....
Beef, dried	4 slices	2	67	.....
Beef, round, lean	1 serving	2.25	60	.....
Beef roast	1 serving	2	43	.....
Beef sirloin	1 serving	1.5	31	.....
Beef porterhouse	1 small steak	1.3	33	.....
Beef rump roast	1 serving	1.5	40	.....
Chicken, young	1 serving	3.3	7.9	.....
Ham, fresh	1 serving	1.1	19	.....
Ham, smoked	1 serving	1.3	30	.....
Lamb, chops	1 small	1	24	.....
Lamb roast, leg	1 serving	1.5	38	.....
Pork, chops	1 small	1.4	21	.....
Pork, tenderloin	1 serving	1.75	39	.....
Pork sausage	1 small	.75	12	.....
Turkey	1 serving	1.2	27	.....
Veal, chops	1 chop	2.3	52	.....
Veal, roast	1 serving	2.3	50	.....
	(All servings are of average size)			
Milk				
Buttermilk	1½ c.	9.8	32	.....
Condensed	1 c.	2	12	.....
Cream, 20%	¼ c.	1.75	5	.....
Skimmed milk	1 c.	9.5	36	.....
Whole milk	⅝ c.	5	19	.....
Nuts				
Almonds	1 doz.	.5	12.8	.....
Brazil nuts	¼ c.	.5	13	.....
Chestnuts	1 doz.	1.4	9	.....
Cocoanut, grated	2 tbsp.	.5	4	.....
Peanuts, shelled	1 tbsp.	.7	19	.....
Pecans	1 tbsp.	.5	10	.....
Walnuts	½ doz.	.5	10	.....

Foods	100 Calories Approx. Meas.	Wt. in oz.	Approx. No. of Cal. from Protein	Cost to be worked out by Students
Soups				
Celery	1 serving	6.4	15.3	.....
Corn	1 serving	3.2	12	.....
Pea	1 serving	7	27	.....
Cream of tomato	2 servings	9	15	.....
Vegetable	2 large servings	25.8	85	.....
Sugars, Syrups				
Loaf sugar	3 lumps	.9	0	.....
Granulated sugar	2 tbsp.	.9	0	.....
Powdered sugar	6 tsp.	.9	0	.....
Maple syrup	¾ c.	1	0	.....
Molasses	2 tbsp.	1.25	3	.....
Honey	2 tbsp.	1	.2	.....
Vegetables				
Asparagus, fresh	1 doz. stalks	7.5	18	.....
Beans, baked	⅓ c.	2.75	21.2	.....
Beans, dried	½ c.	1	25.5	.....
Beans, string	4 large servings	11.2	21.3	.....
Beans, lima	1 serving	4.5	21	.....
Cabbage	2 large servings	11.25	20	.....
Carrots	2	7.75	9.8	.....
Celery	1 bunch	19	24	.....
Corn, canned	1 serving	3.5	12	.....
Corn, green	1 ear	3.5	12	.....
Cucumbers	2	20.3	18	.....
Lettuce	2 large servings	18.5	24	.....
Onions	3 small	7.25	13	.....
Parsnips	1	5.25	10	.....
Peas, canned	2 servings	6.5	26	.....
Peas, fresh	1 large serving	3.5	28	.....
Peas, dried	2 tbsp.	1	27	.....
Potatoes, white	1 medium size	4.25	11	.....
Potatoes, sweet	1 small	2.5	5.5	.....
Pumpkin, cooked	1 c.	13	15.5	.....
Radishes	1 doz.	12	17.9	.....
Spinach	3 servings	14.75	35	.....
Succotash	1 serving	3.5	14.5	.....
Tomatoes, canned	1¾ c.	15.6	21	.....
Tomatoes, fresh	1 large	15.5	15.8	.....
Turnips	2 after cooking	9	13	.....

Finished dietaries should always be tested for the balanced ration. The test to apply being

1. Does it contain the fuel value?
2. Is there a good distribution of protein, fat and carbohydrates?

3. Is the distribution of concentrated with dilute foods good?
4. Is the approximate cost moderate or low?
5. Is there a good supply of ash materials?
6. Is there a balance of acid and base forming material?

TYPICAL BALANCED MENU

For a laboring man for one day

Food	Amount	Calories	Cost
Breakfast			
Oatmeal	1 c.	250	$.01
Sugar	2 tbsp.	50	.002
Milk	⅝ c.	100	.02
Banana	1	100	.015
Bacon	4 slices	150	.03
Milk	1 glass	150	.025
Graham gem	2	200	.02
Oleo	1 tbsp.	100	.005
		1,100	$.127
Dinner			
Beef stew			
Beef	¼	200	.05
Carrot	1	100	.005
Onion	1	100	.005
Potato	1½	150	.01
Flour	2 tbsp.	100	.002
Fat	2 tbsp.	200	.003
Bread	3 slices	150	.01
Apple pie	1 piece	200	.02
Coffee	1 c.	.....	.008
Milk	2 tbsp.	25	.005
		1,225	$.118
Supper			
Baked beans	1 c.	250	$.015
Rye bread	2 large slices	200	.01
Oleo	1 tbsp.	100	.005
Prunes	¾ c.	200	.02
Doughnut	1	200	.02
		950	$.07
		1,100	$.127
		1,225	.118
		950	.07
Total for day		3,275	$.315

Standard dietaries can be worked out from any table of food materials (as given in Farmers' Bulletin 142, of the U. S. Department of Agriculture) showing the percentage of nutrients and calorie equivalents, by keeping in mind the relation of protein to carbohydrates plus the fat reduced to carbohydrate values.

Substitution of one food for another will be necessary to keep the nutritive ratio correct, and with a little practice and experience in working out a few dietaries, one obtains a better knowledge of food compositions than in any other way. Dietaries are made for an entire day or week, since it is not practical or necessary to have each meal balance. In some cases several days may not average up, but at least every week should meet the standard requirement.

APPLICATION

1. Work out dietaries for school girl, at 15c, 25c and 35c a day.

2. Girls work out and demonstrate with materials 100 calorie portion of different foods.

3. Plan dietary for family of five at $1.50 per day, where the wage earner gets $4.50 to $6.00 per day.

4. Calculate your own energy requirement, also your father's.

5. Plan a day's dietary for yourself, and one for your father.

LESSON 29.

MENU BUILDING

To plan a daily menu which will provide the kind and amount of food required by each member of the family is the most important part of the housewife's duties, and requires much time, thought and a knowledge of foods. To plan for the day's meals as a unit or even a week at a time is much better than to plan for each separate meal. The menu builder must have a general idea of the classes of food and the specific functions of food in the body, together with a knowledge of the food and energy requirements of each member of her family.

All five of the food classes should be represented in the diet in at least two meals each day and, if there is not the proper balance of food in a day's menu, it should be righted the second day.

Menus should contain, in addition to the proper balance of the food classes, foods supplying the mineral substances; iron, phosphate and calcium, which play an important role in the body, together with those which furnish bulk, as coarse breads and the cellulose of green vegetables.

Factors Governing Meal Plans.—The first things to determine are the types of menu plans which fit the requirements of the family. Age and occupation are the chief factors governing the type of menu, although season, nationality and condition of health also must have consideration.

If several children of varying ages need to be provided for, milk and eggs must have a generous place in their diet, on account of the mineral and protein material which is present in very desirable form for growth. Old persons require much the same food materials as children.

Adults leading an active life must have more hearty foods and meals than those of sedentary occupation and a man more than a woman.

Climate and season require a change in food plans. In cold weather more energy-giving foods and those which necessitate greater digestive activity may be used. Such foods as pork, baked beans, rich pastry, sausage, hot breads, and plum puddings may be served to adults in cold climates and during the winter months with no apparent difficulty in digestion or ill results, while it would be almost criminal to serve them during hot weather. Foods easy of digestion, as fresh fruit and green crisp vegetables, that serve to cool the body, lean meat, and meat substitutes should prevail during the hot summer days.

Too frequent and rapid drinking of ice-cold beverages, as well as eating ices and all frozen dishes rapidly, is harmful, since they chill the digestive organs and retard the digestive action.

It would be impossible to plan set diets for every one of the same age and occupation, since nationality and food habits of the family must be considered. A very pleasing food combination or dish for one family may not please another one in the same block.

Food habits of children are easily formed and right habits are just as easy to establish as wrong ones, if the menu builder will plan wisely and never let exceptions occur. Where poor health and disease require special diets these must be planned separately in severe cases. In mild cases, simply providing some foods in the menu which are easy of digestion and especially suited to the needs of the patient in the case of adults would be all that would be necessary and the patient may omit such foods as would be harmful.

Digestion must always be considered as a part of any meal plan. Foods of varying nature, such as liquid and solid, easy or difficult of digestion, should make up the menu, in order to gain the best results, and not place too much work upon any of the digestive organs.

It is a poorly planned menu which offers two foods difficult of digestion in one day. One is a sufficient tax on the digestive organs. Such foods may be distributed along in a week's plan and not be harmful. These foods comprise the fatty foods, fried foods and concentrated food, such as cheese.

The flavor, color, texture and manner of serving a food have much to do with the interest and appetite. Never serve a meal lacking in color, flavoring, or variety no matter how well balanced it may be, but avoid serving two dishes of the same flavor in the same meal, as pea soup, creamed peas, or tomato salad and tomato soup. Courses should contrast in flavor, a mild course being followed by one more pronounced. Strong seasonings which destroy natural food flavors are harmful.

Bread, butter and milk may be served in the same form each day. The bread may be changed easily, but no other food should be served in the same form twice the same day.

Several foods which do not harmonize in color may easily spoil the whole appearance of the meal, such as carrots, and tomatoes. Only natural colorings, such as green pepper, parsley, tomatoes, pimentos, grated egg yolks, and orange rind should be used to form a color scheme. The artificial colors are seldom necessary. Center pieces of simple flowers in a pretty vase or basket, or fruit, may be used for a color effect. Garnishes should be simple and edible. Too lavish a garnish is worse than none.

The texture of dishes should vary, that is, do not serve two creamed dishes in one course. Courses should vary in texture also. A liquid course like soup should be followed by a solid food. Many combinations of food are quite generally used, which bring out a pleasing contrast in flavor and texture. Chief among those commonly used are crackers with soup, cranberry sauce with fowl, wafers with cheese, apple sauce with pork.

The manner of serving a food should always be simple, dainty, attractive, varied. To always serve a food in the same dish becomes monotonous. Keen interest may be maintained in simple common foods with a little change in service. Perfectly fresh linen and dishes are great assets in proper table service.

Where seasons are short of fruit and vegetables, it is necessary to make frequent use of them in the diet. Variety may be obtained by preparing them in different ways. Use of seasonable food is a great aid in reducing the cost of meals. Dried fruits are high in food values and also aid in reducing cost, but often fail to appeal to the appetite in preparation. Many attractive methods of serving them should be used instead of always stewing.

Variety is very desirable in meals, but too much at one time makes it more difficult to plan for the future. Dishes which are especial favorites with the family may be repeated more often than others but they should not be served too often; for few dishes will withstand such a test. Never repeat a week's menus, or have regular days for a dish. It is much more interesting for the family to wonder "what we will have for dinner," than to know "this is the day for pork or meat substitute."

An entirely new dish or combination of dishes occasionally is welcome.

Rules for Building Menus.

Serve some food from each class of food each meal.

Serve whole milk, eggs, and fresh vegetables every day of the year if possible. Include in each meal the foods which are needed by each member of the family.

Serve easily digested foods for children and old people. Serve the hearty energy food for active adults.

Simple, well cooked foods are better than elaborate dishes.

Serve a few dishes at one meal and see that no one food class predominates at a meal. For example, potatoes and rice are both starchy foods and nearly equivalent. One is sufficient at a meal. Macaroni and cheese and meat are protein and should not be served at the same time, or fried foods with rich whipped cream desserts or oil salads, which all represent the fatty class.

Carbohydrate foods should have both starches and sugar well represented with more starch than sugar.

Remember that many foods contain more than one class of foods and are valuable in several ways. For example, milk furnishes fat and sugar in addition to protein. Eggs furnish fat and minerals in convenient form as well as protein.

There is no connection between nutritive value and price of food. One must learn to think of nutritive value when planning menus. Some of the foods richest in nutrients are low in price, but a low price does not always signify food value. The best way to reduce cost of menus is by substitute foods of equal value but of less cost.

Foods which stimulate digestive organs should come first in a meal, as fruit for breakfast and soup for dinner There should be at least one hot dish in each meal.

Arrange preparation of meals to save time and fuel.

Use the oven for several things at one time. Never plan a roast without using the oven for the preparation of vegetables, dessert for next day's lunch or supper all at the same time.

Cold desserts should be made in the early morning before washing breakfast dishes. Much of the dinner arrangements may be made ready early in the day, vegetables made ready and desserts and soup prepared.

Plan ahead for left-overs from one day to provide lunch material the day or two days after.

Use a fireless cooker for long slow cooking processes, as for cooking cereals.

Foundation Menus.—Foundation menus suggesting types of menus for breakfast, lunch and dinner suitable for persons with varying muscular activity have been found to be of great assistance to the menu builder.

The first is suited to persons of sedentary habits and gradually increases for those of greater muscular activity.

Breakfast:

I	II	III	IV
Fruit	Fruit	Fruit	Fruit
Bread	Cereal	Cereal	Cereal
Beverage	Bread	Eggs	Meat
	Beverage	Bread	Another hot dish
		Beverage	Bread
			Beverage

Lunch or Supper:

I	II	III	IV
Hot dish of soup or meat substitute.	Hot dish or salad	Soup	Soup
Bread	Bread	Hot dish or salad	Two hot dishes
Beveage	Simple dessert	Bread	Bread
	Beverage	Dessert	Dessert
		Beverage	Beverage

Dinner:

I	II	III	IV
Meat	Soup	Soup	Soup
Vegetable	Meat	Meat	Meat
Bread	Vegetable	Two vegetables	Two vegetables
Dessert	Bread	Bread	Salad
Beverage	Dessert	Dessert	Bread
	Beverage	Beverage	Dessert
			Beverage

Dinner.—Dinner is the heartiest meal of the day and usually contains food in some form representing each of the five food classes. In planning the menus for a day the dinner plan should be considered first. This then is followed by the breakfast the next day and the lunch. This provides a working plan from one morning to another, and, if help is employed, sufficient directions may be given one morning to suffice until the next.

When unexpected guests arrive but little adjusting of the plan is required except perhaps an addition of a vegetable or a simple salad or entree.

The meat dish is the basis of the dinner plan and must be decided first. This decided, the vegetables which accompany the meat selected may be planned for, followed by the soup and dessert.

The menu charts on pages 338-341 are aids in selecting the accompaniments to the meat dish.

Choice cuts of meat are expensive and should be used in moderation. Cheap cuts which supply more nutriment for less cost may be prepared in many ways and serve the same purpose as expensive cuts. On account of the longer time required it is best to cook such meats in water or steam.

Some persons find they are better when meat is served only three or four times a week; others require it at least

once every day, but only active workers should have it more than once a day.

In the light dinner menus for sedentary individuals, light meats, as beef, lamb, poultry, are better than too much fat meat and pork. Active workers can use more of the heavy meat dishes in cold weather, but too much pork is never good.

Most any of the cuts of meat are adapted to the dinner menu and there are endless ways of preparation. Beef is the standard meat and furnishes more food value, along with mutton, than any other meat. Fowl and fish are easier of digestion and make pleasing additions to the diet.

Meat substitute dishes take the place of meat in any menu and should never be served at the same time with meat.

The vegetable which is commonly used is white potato in the North and rice or sweet potato in the South. Rice, hominy and macaroni used occasionally in place of white potato make a good variety, but should not be used at the same time with white potatoes. Plenty of fresh fruit and vegetable should be served also to make up for the lack of mineral salts furnished by potatoes. When two vegetables are served, never serve sweet potatoes with white potatoes. Select one fresh succulent vegetable, if possible. There is no better way of introducing mineral salts, vitamines and bulk in our food than with fresh vegetables every day.

Where season and market prohibits the use of fresh ones, canned or dried may be used. Two of the same class and nature, as peas and beans, should never be served at the same time. Neither should two creamed vegetables appears at one meal. One creamed, one baked is better. In the foundation menus Dinner I contains only potato

with meat. Dinners III and IV have additional vegetables. The selection of these depends mainly upon the meat selected. If a heavy meat is served, a light vegetable accompanies it and vice versa. Compare beef-pork charts, page 340.

The soup at dinner serves to stimulate the digestive organs rather than to furnish any food value. This should be well seasoned and hot, and free from fat. Many soup accessories are served, such as crackers, croutons, bread sticks, etc

Stock soups, as consomme, bouillon, vegetable, with meat as their basis, are best for dinner. These may be made of many combinations of beef, fowl, and vegetable. A vegetable soup without meat is also good. The cream soups, as pea, bean, lentil, are not suitable for dinner, as their food value is very high. These make excellent luncheon soups, when protein material is lacking and the other dishes of the meal are lighter.

Salads for dinner should consist of only fresh vegetables or fruits with crisp salad greens (lettuce, endive) served with a good dressing. Heavy salads of meat, fish and egg should furnish a main dish at luncheon or supper.

Desserts for dinner should be light puddings, fruit or ices, depending on the nature of the meat and vegetable courses. If these are heavy, then a very light dessert, simple fruit or ice is better. If the meat dish is a substitute dish, then one of the egg puddings, as custard, or a heavier dessert may be chosen. Desserts which require little preparation, as fresh or canned fruit, aid in lessening the work where other household cares are necessarily heavy, and are better than rich pastries.

Breakfast.—This meal contains more of the bread and cereal foods with a little fat and sugar, increased in protein

by the addition of eggs, milk and meat as the activity increases.

The fruit may be fresh, canned or stewed dried fruit. Fresh fruit in season may be replaced in winter by canned or dried. Serving dried fruit too often becomes tiresome. Alternate with fresh and canned fruit. Fruit canned with little sugar is better than with too heavy a syrup, which frequently interferes with digestion.

Cereals may be either cooked or the prepared varieties. The cooked cereals, requiring long slow cooking, such as rolled oats, Cream of Wheat, and hominy, are preferable in the heavy diets and furnish heat and energy food for cold weather, and are the only cereal foods for children. Very little sugar should be used on the cereal, as it is a carbohydrate food requiring sugar only to give it a sweet flavor. Too much sugar on food puts added work on the organs of elimination and causes ill results in many children.

Meat substitutes for breakfast consist chiefly of eggs served in various ways, but, preferably poached, soft-cooked, shirred or in an omelet. See chapter on eggs.

Breakfast meats consist of bacon, sausage, creamed fish and liver. Meat and meat substitutes are not used in a light breakfast for persons of sedentary habits, but are necessary in the diet of the active worker where a hearty breakfast should always be eaten.

Breakfast breads are more varied than the bread at any other meal. For the light diet simple toast is better. The hot breads are more difficult of digestion and pan cakes and doughnuts should be avoided.

The active worker, however, may use them quite often without ill results.

Children should never be allowed hot breads, and toast

is best made from bread two days old. Corn breads are the most difficult hot bread to digest, and, unless some wheat flour is used, are very rich in fat.

Breads made from the whole grains are especially recommended as the most healthful and economical.

Beverages for breakfast include milk, cocoa and coffee. Milk and cocoa are especially valuable. Tea and coffee should be served only to adults. They have no value as food except what the cream and sugar may contain.

For luncheon or supper, the hot dish consists mainly in a meat substitute dish, or a hot cream soup or puree or the hot dish may be replaced by a salad in the diet of an adult, when preferred. Many women prefer the salad to a meat substitute dish and, if the weather is hot or their work is light, it fits in admirably well.

The hot dish is best for children and tired workers.

The beverage at luncheon or supper may be the only hot thing in summer. Cocoa or chocolate is better than tea or coffee.

Using left-overs to make the luncheon dish is economy. The character of the left-over may be entirely changed from its original serving at dinner a day or two before, and it will not be recognized in its new form.

Luncheon plans depend largely on the breakfast plans. If a very light breakfast is used, a warm substantial lunch should follow, and vice versa. The luncheon should be the one meal to balance up the food values of the day. If any one food class has been short in the dinner or breakfast, the lunch is the place to remedy the deficit.

Heavy desserts or fruits are one of the best means of balancing the food value. The very light lunch may have for the hot dish a cream soup with some bread, or often a good dessert with bread is ample for many persons.

On the days when a meat substitute is served for dinner the lunch or supper will need to be more hearty as in III.

III and IV may also be used as a basis for the company luncheon. A fruit cup or cocktail is better than a soup, if a hot dish follows. The soup is best when a salad follows.

The beverage is served with the warm course at a luncheon.

See chart for luncheon dishes.

The charts which follow are given to serve as aids in building menus. Several dishes of like nature are grouped together, anyone of which may be selected and the things which are suitable to serve with it are suggested. Only one dish from each column should be selected in one menu. That is, one meat, one vegetable or one salad and so on, depending on the choice of meats in the dinner menu. The type of breakfast or lunch menu will determine the choice of dishes and what to serve with them.

Suggested dishes are taken from text.

Finished menus should be tested to see if they meet all the requirements. A simple test to apply being:—

1. Is it suited to the needs of each member of the family?
2. Is it suited to season and market conditions?
3. Is it within the income and allowance?
4. Is there a good distribution of soft and solid food?
5. Does it contain more than two decidedly flavored or colored foods?
6. Does the week's menu offer variety from day to day?
7. Does it call for simple table service and preparation of dishes?

BREAKFAST AIDS IN MENU BUILDING

Fruit	Cereal	Hot Dish	Bread	Beverage
I. Oranges, apples, peaches, grapes.	Oatmeal.		Buttered toast, French toast, syrup.	Coffee. Milk or cocoa for children
II. Berries, fresh, canned.	Corn flakes, puffed rice, grapenuts.	Poached egg, baked eggs, omelet.	Toast.	Coffee.
III. Baked apple, apple sauce.		Liver and bacon, fried potatoes.	Toast, jelly, toasted cinnamon rolls.	Coffee.
IV. Grapefruit, oranges.	Cream wheat, steamed rice.	Corn beef hash, fried potatoes chipped beef in cream.	Toast	Coffee.
V. Canned or fresh fruit.	Oatmeal.	Fried cornmeal mush, fried cereal, griddle cakes, waffles.	Toast.	Coffee.
VI. Stewed dried fruit, apricots, prunes, peaches.		Ham, jelly omelet, bacon, sausage.	Toast.	Coffee.
VII.	Rolled oats with dates, raisins.	Bacon, chipped beef in cream.	Muffins, pop-overs.	Coffee.
VIII. Fresh fruit, berries	Shredded wheat, corn flakes.	Eggs on toast, scrambled eggs, golden rod eggs.	Buttered toast.	Coffee.
IX. Cantaloupe.		Ham, eggs.	Toasted muffins, honey	Coffee.
X. Canned fruit, apple sauce, oranges.		Creamed codfish, codfish balls, bacon, baked potato.	Corn bread, corn muffins.	Coffee.

LUNCHEON AIDS IN MENU BUILDING

Soup	Hot Dish	Salad	Bread	Dessert	Beverage
I. Cream, pea, bean, lentil.		Vegetable, tomato, potato, head lettuce.	Rolls, biscuit, peanut sandwiches.	Tea cakes.	Tea, coffee.
II. Cream tomato.		Meat or fish.	Croutons, bread, cheese, sandwiches, pop overs	Lemon queens, canned fruit.	Tea, coffee.
III.	Baked macaroni with fish, or dried beef or cheese.		Hot B. P. cinnamon rolls.	Baked apple, cream.	Tea, coffee.
IV.	Omelets (jelly, rice, ham) with white sauce, peas.		Rolls.	Fresh berry tarts, or quick puddings.	Tea, coffee.
V.	Spaghetti, rice, tomatoes, green peppers, baked casserole dishes.	Relish.	Hot biscuit, honey.	Cup custards, floating island, choc. cream pudding.	Tea, coffee.
VI.		Fish, meat or egg, chicken.	Cheese rolls, olive sandwiches, nut bread.	Apple dumplings, Dutch apple cake, berry pie.	Tea, coffee.
VII. Cream celery, onions, potato, rice.	Stuffed baked potatoes, chicken or veal croquettes, creamed chicken on toast.	Jelly.	Rolls.	Short cakes, sherbets, apple tapioca.	Tea, coffee.
VIII.	French toast, waffles, syrup, rice croquettes, jelly.	Tomato, fruit wafers.		Individual custard pie, pumpkin.	Tea, coffee.
IX.	Baked beans, minced ham, creamed chipped beef, salmon souffle.	Pickles, relish.	Brown bread, toast.	Fresh, canned fruit, sherbet, cake.	Tea, coffee.
X. Fruit cup, (cold)	Scalloped dishes, oysters, corn, souffles cheese, pea, eggs a la Suisse.		Potato muffins, berry muffins.	Fresh fruit.	Tea, coffee.

MENU CHARTS (In Lesson 29)

DINNER AIDS IN MENU BUILDING

Meats	Vegetables	
	Starchy	Succulent
I. Beef roast (ribs, flank, rump).	Browned or mashed potatoes, hominy, parsnips, Yorkshire pudding, rice.	Cabbage, tomatoes, onions, spinach.
II. Beef pot roast, loaf, stew.	Mashed potatoes, rice, macaroni.	Carrots, turnips, onions, squash, peas.
III. Steaks, porterhouse, tenderloin, hamburg, swiss, round.	Baked potatoes or au gratin potatoes, corn, parsnips, artichokes, potato borders.	Asparagus, tomatoes, cauliflower, green peppers, mushrooms.
IV. Sweetbreads, liver, tripe, tongue, chatreuse.	Rice, white potatoes, peas, lima beans, string beans.	Spinach, beets, celery, onions, carrots.
V. Lamb, mutton, roast, chops, stew.	Baked potatoes, rice, hominy, peas.	Beet greens, spinach, onions, Brussel sprouts, squash.
VI. Veal, roast, chops, cutlets, birds, loaf.	Sweet potatoes, glaced, eggplant, corn, peas, mashed potatoes.	Asparagus, cauliflower, onions.
VII. Pork, roast, chops, tenderloins, spare ribs.	White potatoes, parsnips, rice with tomatoes, bread dressing.	Onions, stewed apples, apple sauce, sauer kraut.
VIII. Ham, baked, fried, loaf, casserole.	Baked potatoes, scalloped potoloes, hominy, string beans.	Spinach, dandelion greens stuffed onions, cauliflower in cream.
IX. Chicken, fried, roasted, fricassee, or pot pie.	Sweet potatoes, peas, wax beans.	Brussel sprouts, cauliflower, peppers.
X. Fish, baked, fried, scalloped, finnan haddie.	French fried potatoes, corn, rice, macaroni, potato balls.	Tomatoes, beets, stuffed peppers.
XI. Oysters, lobsters, clams.	Same as X	Same as X
XII. Turkey, duck, goose, venison.	Mashed potatoes, corn, hominy, bread dressing, peas.	Tomatoes, squash.
XIII. Meat substitutes, cheese or nut loaf, baked beans, macaroni and cheese.	White potatoes, rice, spaghetti.	Cabbage, tomatoes, onions, squash.

DINNER AIDS IN MENU BUILDING—Cont.

Soups	Bread	Salad and Accompaniments	Dessert	Beverage
Clear tomato, Celery, spinach, vegetables.	Bread or rolls	Lettuce, cucumber, fruit, olives, asparagus.	Fruit ice, canned fruit, apple tapioca.	Coffee or tea
Noodle, vegetable, celery, chicken.	Bread or rolls.	Lettuce, romaine, watercress, cucumbers, tomatoes, cabbage slaw.	Rice pudding, berry short cake, fruit.	Coffee or tea
Asparagus, clear tomato, chicken with rice.	Hot bread, biscuit.	Same as I and II.	Tapioca puddings, short cakes, gelatin desserts, sherbets.	Coffee or tea
Noodle, clam broth, ox tail, clear tomato.	Biscuit or muffins.	Apple and celery, head lettuce, thousand island dressing.	Cup custards, choc. cream, pastry.	Coffee or tea
Vermicelli, vegetable consomme.	Rolls or biscuit.	Cold slaw, mint jelly, fruit salad.	Apricot or peach ice.	Coffee or tea
Bouillon, consomme, vegetable.	Bread, rolls.	Head lettuce, tomato, cucumbers.	Quick steamed pudding.	Coffee or tea
Consomme, Julienne	Bread.	Apple, celery, lettuce, French dressing.	Fresh fruit ices.	Coffee or tea
Consomme.	Bread.	Same as VII.	Baked apple, fruit jelly, date pudding.	Coffee or tea
Clear tomato, bouillon, celery.	Biscuits, rolls.	Cranberry jelly, fruit, egg.	Short cakes, fruit souffles, ice cream, cake.	Coffee or tea
Bouillon, celery, tomato.	Bread.	Green peppers, lettuce, cucumbers, French dressing.	Prune whip, snowball, pudding, apple sauce.	Coffee or tea
	Rolls.	Waldorf, lettuce, French dressing, cabbage slaw.	Cornstarch pudding, sherbets.	Coffee or tea
Oyster, cream asparagus.	Rolls, biscuit.	Apple salad, apple sauce, currant jelly, fruit salad, grape jelly.	Sherbets, parfaits, pastry, short cakes.	Coffee or tea
Cream tomato, cream pea. vermicelli.	Biscuit or cinnamon rolls.	Same as X.	Custard pie, steamed puddings.	Coffee or tea

LESSON 30.

MARKETING

Rules for Marketing.—

1. The woman, to manage her home successfully, should have a definite income or allowance and know how much of that should be spent for food.

2. Order lists should be made at home before going to market.

3. What supplies are needed should be known and ordered before one is entirely out of any article. A marketing list should be kept in the kitchen, on which should be noted the items that are getting low.

4. Marketing should be done as early in the day as possible, to allow time for delivery.

5. One should go to market and make one's own selections instead of ordering by telephone.

6. One should patronize only reliable merchants who give first-class service. Weigh and inspect goods purchased and read labels to see that proper value is obtained for the money spent.

7. Only markets that are perfectly sanitary and where the dress and habits of the clerks are neat should be patronized.

8. Staples should be bought in quantity, if possible, and ordered therefore less frequently. Perishable foods should be purchased in small quantities every day or two.

9. It shows a lack of planning to expect or ask more than one delivery a day. Emergency supplies on hand will take care of unexpected company demands.

10. Clerks and delivery boys should not be asked for too much special service.

11. Goods should be bought in season when prices are

right and low. Goods out of season are always high, due to transportation and hothouse conditions. High prices do not signify quality.

12. Cheap food below prevailing market prices is either damaged or of inferior grade. Everything should be examined before buying.

13. The price of goods should be known before buying.

14. The housekeeper should learn to substitute one food for another of like composition and character, in order to secure equal results in the menu for least money.

15. Canned goods should be bought by size number of can and by trade name, never by price of can. Every wholesaler has special brand names. Test and compare grades as to weight, quality and price, then order in dozen or case lots, if possible, the brands found to be the best.

16. Fancy and extra fancy brands all command fancy prices without giving any higher food value. They should not be ordered unless one can afford to buy them and only then for especial occasions.

17. Package goods command higher prices than bulk foods. Labels and containers add to cost. Where large amounts are used, purchasing in bulk is best, if quantity will be used before food deteriorates by long storing. If small quantity is used, package goods often times are best; they are cleaner, and sanitary methods of handling make them worth an extra price.

18. Buying in quantity more food of any kind than will be used during a season is extravagant. Foods lose considerable value in long storing and a fresh stock of food is always safer.

19. Pay cash for goods when possible. If a credit system is used, bills should be paid promptly every week or month at most. Never allow a bill to go over.

20. Never buy anything it will be impossible to pay for. Live within your income, no matter what it may be.

21. Check bills and get a receipt when bills are paid. Keep all receipts.

MARKET CHART

Amount	Material	Cost	Amount	Material	Cost
1	pound butter		1	pound dates	
1	pound sugar, granulated		1	pound suet	
1	pound powdered sugar		1	pound cheese	
24	pounds flour		1	pound tapioca	
1	qt. milk		1	pound rice	
1	qt. cream		1	pound macaroni	
1	qt. molasses		1	pound citron	
1	doz. eggs		1	pound peanut butter	
1	cake yeast, compressed		1	pound crackers	
1	pt. vanilla		1	pound corn starch	
1	box soda		1	pound sweet potatoes	
1	pound baking powder		1	pound tea	
1	box spice		1	pound coffee	
1	pound coffee		1	pound chocolate	
1	pt. olive oil		1	pound grated cocoanut	
1	pound tea		1	pound can tomatoes	
1	pound pkg. gelatin		1	pound can salmon	
1	pound lard		1	pound can lobster	
1	pound cheese		1	pound can corn	
1	doz. lemons		1	pound can peas	
1	doz. oranges		1	pound can sardines	
1	doz. apples		1	pound can shrimp	
1	doz. bananas		1	onion	
1	doz. peaches		1	carrot	
1	pound raisins		1	turnip	
1	pound prunes		1	bunch celery	
1	pound walnuts		1	bunch parsley	
1	pound peanuts		1	head lettuce	
1	pound pecans		1	glass jelly	
1	pound almonds		1	box berries	
1	pound bacon		1	pound tomato	
1	pound buckwheat		1	pound dried beans	
16	oz. rolled oats		1	pound dried peas	
16	oz. cream of wheat		10	pounds suet	
10	pounds cornmeal		1	qt. vinegar	
5	pounds whole wheat flour		1	bar soap	
1	pound figs				

APPLICATION

1. Market trips, observing conditions in markets.
2. Budget allowances for food under different conditions.
3. Study of trade brands of canned goods at local stores. Comparison of brands.
4. Personal marketing for meals, with cash. Each girl to have a definite assignment.
5. Make complete market charts with prices, sizes, weights, trade names.

LESSON 31

HOME MANAGEMENT. HOUSEHOLD ACCOUNTS

The home as we know it has grown out of a need of shelter for the family. The home-makers have always been women; the care of the home and the management of all household duties have always been in their hands.

Knowledge comes from study and practice, or in the actual doing. Every man spends several months or years in preparation for the business or trade he intends to enter. So every girl should spend time and study in fitting herself for her life work.

It has been estimated that 95 per cent of the girls eventually take their places in the home. So it seems necessary to include in the education of every girl some study and practice in home management, if her home is to be conducted in a business-like manner.

Good home management includes the selection and care of all materials used in the continuance of the home —the food, its preparation and service; the care of children; the management of servants; and the keeping of accurate household accounts.

One of the most important features of good home management is system. With a system each day and week has its special duties to be performed, and each member of the household knows what he or she is responsible for.

The home-maker must be thoughtful, have a good sense of values, and exercise good judgement in expenditures. She must be interested in her home and willing to help others.

Servants.—Servants need wise supervision and are only too quick to recognize the worth of an employer. The woman who is able to retain good help exercises good judgement in the manner in which she treats her servants.

Commending servants for things well done and refraining from nagging or reprimanding them before others will result in better work and greater effort to please.

A wage scale for help by which the wages increase at stated times or on the merit system will effect an improvement in retaining efficient help. Servants are as ambitious as any other class of workers and move from one place to another in the hope of bettering themselves.

Household Accounts.—The standards of living differs with individuals and families according to education, tastes, occupation, and country.

The home system of accounts should be simple and easy to keep. A good plan is to divide the yearly income according to months and weeks and to keep all expenses well within the limits. Set aside a percentage of the salary for each class of expenditures — shelter, clothing, food, etc. As the income increases, the percentages of expenditures for some of the items usually increase in proportion up to a certain point.

When the division of the income has been decided upon a system of book keeping will greatly aid in keeping track of each expenditure. A sample page of a simple system is here given.

All stores send duplicate slips with each purchase. These should be kept together and used to check up with the monthly statement. In case of error these are of great value in correcting the account.

HOUSEHOLD ACCOUNTS

Month of..... (summary)

Items of Expenditures	Amounts		Totals
Food			
Meat			
Milk and cream			
Groceries			
			Total Food
Shelter			
Rent			
Insurance			
Taxes			
Repairs			
			Total Shelter
Clothing			
			Total Clothing
Operating Expenses			
Fuel			
Light			
Gas			
Ice			
Telephone			
Help			
			Total Operating
Education and Amusement			
School			
Papers, Books, etc.			
Traveling			
			Total Ed. & Amus.
Benevolence			
Church			
Club dues			
Charity			
			Total Benevolence
Personal Accounts			
			Total Pers. Accts.
Emergencies			
Doctor			
Dentist			
Medicines			Total Emergencies
Incidentals			
			Total Incidentals
Total Expenses			Income Balance (loss or savings)

The monthly statements may be carried forward each month, showing the balance; or a yearly summary may be drawn on a separate page, showing the expenditure totals and the complete credits or debits at the end of the year.

Whatever the system employed in keeping the household accounts, it should show: (1) The total income or cash received, (2) the total expenditures, (3) how the money was spent, and (4) the balance—savings or losses.

Children should be taught to keep their own personal accounts for each week or month, and be made responsible for an allowance, however small.

APPLICATION

1. Work out a suggestive outline of household duties and plan for a week's work in your home.

2. Assign the duties of one maid.

3. Assign the duties of two maids.

4. Make out a household account record page for one month, using a typical family of four, including two children.

5. Make out your own home expense account for the past month.

6. Make out your own personal account for the past month.

LESSON 32

INVALID COOKERY

Food for the sick is an important subject, and much time can be given to this one branch of cookery. The quantity and kind of food for patients must be varied according to the nature of the disease. A housekeeper with a knowledge of foods and food values suitable to different diets is of great assistance to the physician attending the case, and is able to carry out his orders satisfactorily and often can do without the services of a trained nurse in simple cases.

Dietaries are classified, to assist nurses in caring for their patients, as liquid, soft, light, and full diets.

A liquid diet includes milk, beef tea, broths, beef juice, strained gruels, egg nogs, cream soups, cocoa, and all other liquid foods. Tea and coffee must be avoided.

A soft diet includes dishes in the liquid diet and also milk toast, soft-cooked eggs, jellies, boiled custards, junkets, ice cream, apple sauce, and cereals.

A light diet includes soft-cooked eggs, baked custard, creamed toast, sweet breads, asparagus, scalloped oysters, gelatin jellies, baked apples, stewed prunes.

A full diet, includes soups, meat, fish, eggs, cereals, vegetables, fruits, and desserts that are easily digested. Never give to any patient even the smallest amount of food difficult of digestion.

Special diets are those ordered by a physician for special cases.

Rules for Serving Invalids.—

1. Cook all food carefully and thoroughly.
2. Serve hot food hot and cold food cold.
3. Serve food daintly and attractively.
4. Use the prettiest dishes and the best linen.
5. Put a flower or a small plant on the tray to make it attractive.
6. Plan to have surprises for the patient in the kinds

Fig. 44. An invalid's tray.

of food as well as in the ways it is served. This helps to create an appetite, which often is lacking.

7. Always remove all bottles and signs of medicine from the sight of the patient, and remove the tray as soon as the patient has finished eating.

APPLICATION

These recipes are for individual portions suitable for one patient and for two girls working together in practice work in the kitchen.

1. Dry Toast

Method.—Slice stale bread in ⅓ inch slices, remove the crusts, place in a toaster and dry thoroughly, turning

occasionally. Toast a golden brown on both sides. The starch is dextrinized and made more easy of digestion by toasting.

2. Milk Toast

2 slices dry toast
½ tbsp. butter
¾ c. scalded milk
¼ tsp. salt

Method.—Butter the toast, arrange on a hot dish, pour the hot milk over it, and sprinkle with salt.

3. Water Toast

2 slices dry toast
1 c. boiling water
½ tbsp. butter
¾ tsp. salt

Method.—Drop the slices of toast separately into the boiling water, remove to a hot dish, spread with butter, and serve at once.

4. Oatmeal Jelly

⅓ c. rolled oats
1½ c. boiling water
Pinch of salt

Method.—Add the oats gradually to the boiling water, add the salt, boil 2 minutes, and then steam in a double boiler 45 minutes to 1 hour. Force through a fine strainer, mold, chill, and serve with sugar and cream.

5. Barley Gruel

1 tbsp. barley flour
2 tbsp. cold water
1 c. water or milk
¼ tsp. salt

Method.—Add the 2 tablespoonfuls of cold water to the flour to make a thin paste; then add gradually to the scalded milk or boiling water while stirring constantly. Cook in a double boiler 20 minutes. Season and strain.

6. Cracker Gruel

1 tbsp. cracker crumbs
¾ c. milk
Pinch of salt

Method.—Scald the milk, add the cracker crumbs, and cook over boiling water 10 minutes; season to taste.

7. Pasteurized Milk

Method.—Put milk in sterilized, small-mouth glass bottles, stop with cotton batting or absorbent cotton, place bottles in a wire basket, and immerse the basket in a kettle of cold water. Heat water gradually to a temperature of from 160° to 170° F. Keep at this temperature 30 minutes; remove and cool bottles quickly and keep in cold water.

8. Egg Nog

1 egg
¾ tbsp. sugar
A few grains salt
1½ tbsp. sherry or
1 tbsp. brandy or rum
⅔ c. cold milk

Method.—Beat the egg slightly, add the sugar, salt, and the liquor, and then the milk gradually. Strain, and serve.

9. Eggs in a Nest

1 egg
1 slice of toast
1 tsp. butter
Pinch of salt

Method.—Separate the yolk from the white of the egg, beat the whites until stiff, sprinkle with salt, and heap on a slice of toast. Make a depression or nest in the center, drop into this the whole yolk, place in a pan in the oven for 2 minutes. Place a tiny piece of butter in the center of the nest and serve at once.

10. Beef Juice

Method.—Broil a small piece of round steak, cut it into small pieces, squeeze the juice from it into a cup, season with salt, and serve.

11. Beef Extract

Method.—Cut round steak into small pieces. Put into a sterile canning jar, cover and place the jar into a kettle of cold water. Heat the water gradually and keep at a temperature of 130° F. for 2 hours. Turn meat from the jar and press until the juice is extracted. Season the juice with salt, and serve.

12. Beef Tea

1 pound of beefsteak cut from the round 2 c. cold water
Salt to season

Method.—Prepare the beef as for beef extract, put in a sterile jar or double boiler, add cold water, and heat gradually, keeping the temperature at 130° F. for 2 hours. Increase the temperature at the end of that time until the liquid becomes a chocolate color and the albuminous juices are slightly coagulated. This removes the raw taste of the tea. Season with salt.

13. Mutton Broth

2 pounds of mutton from the neck
2 c. cold water

Method.—Cut the meat in small pieces, soak in water 1 hour. Simmer for 3 hours, strain, and remove the fat. 3 tablespoonfuls of rice may be boiled and served with the strained broth.

APPENDIX

EMERGENCIES AND FIRST AID

In all cases of emergencies, the thing to remember is self-control, and then to render first aid as quickly as possible. If the accident is serious, send for a physician at once, but many cases can be cared for by any one who understands first-aid treatments.

Fainting is caused by mental impression, exhaustion, pain, heat, bleeding, overcrowded rooms, etc. The symptoms are sudden unsconciousness, pale face, cool, moist skin, weak pulse, shallow breathing, and dilated pupils.

Treatment.—If face is pale, get more blood to the brain. Lay the patient flat on his back with the head low and the legs raised; sprinkle cold water on his face, and gently apply ammonia or smelling salts to the nostrils to make him breathe. Get him out into the fresh air, and loosen the clothing about the neck and waist. An attack of fainting can often be prevented by sitting in a chair and thrusting the head down between the knees and holding it there until the face becomes flushed. If unconsciousness is accompanied by a flushed face, elevate the head.

Heat Stroke.—Heat stroke is the same as fainting.

Treatment.—Apply cold water to the body and ice to the head.

Bleeding from the Nose.—This is caused by excess blood pressure or from a foreign substance in the nose, and is often hard to check.

Treatment.—Hold arms vertically above the head; put ice or cold water on back of the neck, between the shoulders, and over the root of the nose at the forehead; very cold or

very hot water or hydrogen peroxide should be snuffed up the nose. Pressure by placing a roll of cotton or cloth under the upper lip next to the gum may be a benefit. Should the bleeding still continue, plug the nostrils with absorbent cotton; if the blood then runs in the throat from the back of the nose, the assistance of a surgeon will be required.

Bleeding from a Cut.—If the blood is bright red and comes in spurts it is from an artery, and needs prompt attention. If the blood is bright red but flows slowly, it comes from a capillary. If blood is dark red or blue and flows steadily, it comes from a vein.

Treatment.—Apply pressure above and below the cut. Raise the portion of the body that is cut. Bind the cut with antiseptic gauze bandage directly on the wound tight enough to stop the flow of blood. In severe bleeding use a tourniquet to tighten the bandage. This is made by putting a stick under the bandage and twisting it to tighten it. Ice, salt, and alum cause the blood to coagulate and are used on wounds in cases of emergency

Infection is caused by the presence of bacteria.

Treatment.—Clean thoroughly a wound that has not bled freely, by washing with a salt solution or alcohol, or a weak solution of carbolic acid, not more than 3 per cent; then bind with antiseptic gauze.

Burns are caused by contact with dry heat, as from hot metal; scalds are caused by moist heat, as from liquids, including acids.

Treatment.—Cover with a wet cloth sprinkled with baking soda or dipped in boric acid, or apply vaseline or olive oil. Usually a cloth saturated with olive oil will relieve the pain. Where the skin is destroyed, watch the burn carefully to prevent infection. In case the clothing catches on fire, wrap the patient in a heavy rug, blanket,

or coat at once to smother the flames. Send for a physician in severe cases.

Frost bite is caused by prolonged exposure of the body to a very low temperature. It produces a loss of vitality and the affected part becomes stiff and white.

Treatment.—Never take a frozen person into a warm room or apply heat to a frozen part. The temperature must be raised gradually. Remove the clothing, if any, on the affected part, and rub with snow or cold water; later rub with the hand carefully to restore the circulation but do not injure the skin. Stimulants, like brandy, may be given in severe cases, or allow the patient to inhale the fumes of ammonia from a handkerchief to restore consciousness.

Asphyxia.—This is a condition of unconsciousness due to a great diminution of oxygen in the blood, caused by an obstruction in the air passages of the throat or lungs, or to the presence of poisonous gases, such as coal gas from stoves or illuminating and sewer gas.

Treatment.—Remove the cause, in order that the lungs may be supplied with the proper amount of pure air. Re-establish respiration by artificial means. This is produced by moving the arms upward above the head, to elevate the ribs and expand the chest; then slowly lowering the elbows and pressing them against the sides of the body. Repeat this movement fifteen times a minute until the patient is recovered. Stimulate the heart and the circulation by the use of stimulants, warm applications, and friction. *Send for a physician and the pulmotor.*

Earache.—Apply hot applications. See a physician as soon as possible.

Foreign Substance in the Eye.—Particles of dust or cinders may lodge under the lids or in the eyeball.

Treatment.—In the latter situation a physician should always be consulted. To examine the lower lid, draw down with the fingers and at the same time tell the patient to look up; if the particle is not there, evert the upper lid by standing behind the patient, with his head upon your chest; and tell him to look down at his feet. At the same time press a match or the end of a finger firmly about a quarter of an inch behind the margin of the lid, draw the lid down by the lashes and turn it upward and outward over the match or fingertip. If the particle is not visible, search the ball of the eye carefully for it, and if found lift it gently by a quick movement with the point of a burnt match or toothpick.

Poisons are caused by the presence in our bodies of substances which act upon the body tissues and life itself, and must be treated *at once.* Poisons are of several kinds: (1) Corrosive poisons, which act instantly; (2) irritant poisons, which produce inflamation of the tissues; and (3) narcotic poisons, which produce unconsciousness.

Treatment.—Send for a physician at once; in the meantime try to produce vomiting to expell the poison, and give an antidote for the poison. To produce vomiting, run the finger down the throat or give an emetic. A good emetic is a mixture of ½ pint warm water and a tablespoonful of mustard or salt, or plenty of warm water is often effective.

An acid and an alkaline substance neutralize each other when put together; so in case of acid poisoning give an alkali (baking soda); and in the case of alkali poisoning, give an acid (dilute vinegar) for an antidote.

Antidotes injure the inside of the stomach and must be followed by some substance like milk, white of egg, or

oil. Stir the whites of four eggs in a quart of water and make the patient drink as much as he can.

POISONS AND THEIR ANTIDOTES

Corrosive poisons	
Acids—Carbolic Nitric Sulphuric Hydrochloric Oxalic	Give an *emetic*,—an alkali; as, limewater or a solution of soda and water. Follow later with white of eggs.
Alkalis	
Ammonia Lye Potash	Give vinegar and water, or lemon juice. Large dose of oil or milk to form an emulsion.
Irritant poisons	
Rat poison Arsenic Paris green Iodine Phosphorus matches	Give an *emetic*,—warm water and mustard. Follow with milk or white of eggs.
Bichloride of mercury	Same, also Epsom salts.
Narcotic poisons	
Alcohol Chloroform Opium Morphine Laudanum Aconite Strychnine Camphor balls	Give an *emetic*. Keep the patient awake. Give strong black coffee. Use artificial respiration and stimulation.

SCORE CARDS FOR JUDGING COOKERY*

BREAD

	Points
General appearance: Loaf well rounded, not cracked at sides, evenly baked	5
Baking: Crust even chestnut-brown in color, and about ⅛-inch thick; center of loaf well done, not soggy	10
Odor: Sweet and nutty	10
Flavor: Sweet and nutty, suggesting taste of wheat	30
Grain and Texture: Cut surface should have silky appearance, and be evenly honey-combed with rather small holes	20
Lightness: A well-risen loaf is about twice the size of the dough when placed in pan; cut surface elastic to touch	10
Crumb: Glossy and moist, not gummy when pressed, or dry and crumbly	10
Color: Inside of loaf creamy white, not snowy white	5
Total	100

BAKING POWDER BISCUIT

General appearance: Shape evenly risen to about twice original height, not conical or sunken; surface not too rough or too smooth and shiny, no large cracks or holes; color a nice, uniform brown, not speckled or floury	20
Baking: Crust golden brown, not too thick or thin; inside light	25
Lightness: Inside light and white, well baked	25
Texture: Inside moist but not waxy, crumbly, or doughy	15
Flavor: That of well-cooked wheat cereal	15
Total	100

PASTRY

Baking: Brown top and bottom	35
Texture: Brittle, flaky	40
Flavor: Not greasy; pleasant taste	25
Total	100

DOUGHNUTS

General appearance: Well rounded; baked a good brown; comparatively smooth	15
Lightness: Light; elastic to the touch	25
Texture: Holes of aeration fine and numerous	25
Flavor: Not too spicy, or oily, or sweet	35
Total	100

WHITE COOKIES

General appearance: Slightly rounded over top and sides; no flour on surface; edges smooth and unbroken	50
Texture: Holes of aeration small and uniform in size; delicate, seeming to melt in the mouth; thinner and more brittle than butter cake, but not as brittle as a wafer	50
Total	100

CAKE

	Sponge Cake	Chocolate Cake (loaf, unfrosted)	Fruit Cake
General appearance	10	10	10
Lightness	30	30	35
Texture	25	25	10
Tenderness	15	10	
Baking	20	20	25
Moisture		5	10
Flavor			10
Totals	100	100	100

*Arranged from Minnesota Extension Bul. No. 19.

TABLES

Showing Nutrients and Energy of Digestible Portions of some Common Foods

Kind of food materials	Refuse	Water	Total indigestible nutrients	Digestible nutrients				Fuel value per pound
				Protein	Fat	Carbohydrates	Ash	
ANIMAL FOOD								
Beef, fresh:	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Calories.*
Chuck, ribs	16.3	52.6	1.4	15	14.3	.....	0.6	910
Loin, medium	13.3	52.5	1.6	15.6	16.6	.....	.7	1,025
Ribs	20.8	43.8	1.8	13.5	20	.....	.5	1,135
Round, medium	7.2	60.7	1.4	18.4	12.2	.....	.8	890
Shoulder and clod	16.4	56.8	1.2	15.9	9.3	.....	.7	715
Beef, dried and smoked	4.7	53.7	4.5	25.6	6.6	.....	5.5	790
Veal:								
Cutlets, round	3.4	68.3	1.2	19.5	7.1	.....	.8	695
Leg	14.2	60.1	1.1	15	7.5	.....	.7	625
Mutton:								
Leg	18.4	51.2	1.4	14.6	14	.....	.6	890
Loin	16	42	2	13.1	26.9	.....	.5	1,415
Pork, fresh:								
Loin, chops	19.7	41.8	1.8	13	23	.....	.6	1,245
Ham	10.7	48	1.9	13.1	24.6	.....	.6	1,320
Pork, salted and smoked:								
Bacon	7.7	17.4	4.4	8.8	59.1	.....	3.1	2,720
Ham	13.6	34.8	3.1	13.8	31.7	.....	3.2	1,635
Salt, fat	.....	7.9	5.4	1.8	81.9	.....	2.9	3,555
Poultry:								
Fowl	25.9	47.1	1.2	13.3	11.7	.....	.5	765
Turkey	22.7	42.4	1.6	15.6	17.5	.....	.6	1,060
Fish, fresh:								
Cod, dressed	29.9	58.5	.5	10.8	.2	.....	.6	220
Mackerel	44.7	40.4	.7	9.9	4	.....	.5	370
Shellfish:								
Oysters, solids	.....	88.3	.6	5.8	1.2	3.3	.8	225
Fish, preserved and canned:								
Cod, salt	24.9	40.2	5.1	15.5	.4	.....	13.9	325
Salmon, canned	.....	63.5	1.9	21.1	11.5	.....	2	915
Eggs, uncooked	11.2	65.5	1.1	12.7	8.8	.....	.7	635
Dairy products:								
Whole milk	.....	87.0	.5	3.2	3.8	5	.5	310
Skim milk	.....	90.5	.3	3.3	.3	5.1	.5	165
Cream	.....	74	1.1	2.4	17.6	4.5	.4	865
Butter	.....	11	4.9	1	80.8	.....	2.3	3,410

SHOWING NUTRIENTS AND ENERGY OF DIGESTIBLE PORTIONS OF SOME COMMON FOODS (*continued*)

Kind of food materials	Refuse	Water	Total indigestible nutrients	Digestible nutrients				Fuel value per pound
				Protein	Fat	Carbohydrates	Ash	
VEGETABLE FOOD								
	Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Calories*
Cereals, etc.:								
Cornmeal	.....	12.5	3.3	7.8	1.7	73.9	.8	1,640
Oat breakfast food	.....	7.8	5.1	14.2	6.6	64.9	1.4	1,800
Rye flour	.....	12.9	2.9	5.8	.8	77.1	.5	1,620
Rice	.....	12.3	2.9	6.8	.3	77.4	.3	1,625
Wheat flour, patent process	.....	12	3.4	9.7	.9	73.6	.4	1,635
Wheat breakfast food	.....	9.6	3.8	10.3	1.6	73.7	1	1,680
Bread, etc.:								
Bread, white wheat	.....	35.3	2.9	7.8	1.2	52	.8	1,200
Crackers, cream	.....	6.8	4.5	8.2	10.9	68.3	1.3	1,925
Vegetables:								
Beans, white, dried	.....	12.6	7.9	17.5	1.6	57.8	2.6	1,520
Beets, fresh	20	70	.8	1.1	.1	7.3	.7	160
Cabbage	15	77.7	.6	1.2	.2	4.6	.7	115
Potatoes	20	62.6	1.2	1.5	.1	14	.6	295
Squash	50	44.2	.4	.6	.2	4.3	.3	100
Sweet potatoes, fresh	20	55.2	1.6	1.2	.5	20.8	.7	440
Tomatoes	.....	94.3	.5	.7	.4	3.7	.4	95
Fruits:								
Apples	25	63.3	1.2	.3	.3	9.7	.2	190
Bananas	35	48.9	1.6	.7	.4	12.9	.5	260
Grapes	25	58	1.7	.9	1.1	13	.3	295
Oranges	27	63.4	1	.5	.1	7.7	.3	150
Strawberries	5	85.9	1	.8	.5	6.3	.5	150

CHEMICAL COMPOSITION OF FOODS

Proteins	Fats	Carbohydrates	Ash	Water
Carbon Hydrogen Oxygen Nitrogen Sulphur Phosphorus	Carbon Hydrogen Oxygen	Carbon Hydrogen Oxygen The two latter in the proportion found in water.	Sulphur Phosphorus Chlorine Sodium Potassium Calcium Magnesium	Hydrogen Oxygen

FOODS RICH IN VARIOUS NUTRIENTS

Protein	Fat	Carbohydrate	Ash
Beans	Bacon	Beets	Eggs
Cheese	Beef suet	Bread	Fruits
Corn	Butter	Candies	Green Vegetables
Eggs	Cheese	Cereals	Milk
Fish	Chocolate	Cornmeal	
Lean meat	Cornmeal	Crackers	
Lentils	Cream	Dried beans	
Nuts	Fat meat	Dried fruits	
Oats	Lard	Hominy	
Oysters	Nuts	Honey	
Peas	Oatmeal	Macaroni	
Poultry	Olives	Oatmeal	
Protein	Salt pork	Potatoes	
Skim milk		Rice	
Wheat		Sago	
		Sugar	
		Syrups	
		Tapioca	

BOOKS AND BULLETINS FOR REFERENCE AND SUPPLEMENTARY READING.

GENERAL REFERENCE BOOKS

Bacteria, Yeasts, and Molds in the Home. Conn. (Ginn.)
Bacteriology, Household. Buchanan. (Macmillan.)
Chemistry of Cooking and Cleaning. Richards and Elliot. (Whitcomb and Barrows.)
Cookery, Elements of the Theory and Practice of. Williams and Fisher. (Macmillan.)
Cost of Living. Richards. (Wiley.)
Dietetics, Practical. Thompson. (Appleton.)
Dust and Its Dangers. T. M. Prudden. (Putnams.)
Elementary Household Chemistry. J. F. Snell. (Macmillan.)
Food. Church. (Chapman and Hall, London.)
Foods, Cost of. Richards. (Wiley.)
Food and Dietetics. Hutchison. (McClurg.)
Food and Dietetics. Norton. (American School of Home Economics.)
Home Economics. Parloa. (Century.)
Feeding the Family. Rose. (Macmillan.)
Food Products. Sherman. (Macmillan.)
Chemistry of Food and Nutrition. Sherman. (Macmillan.)
Source Chemistry. Bailey. (Blakiston.)
Laboratory Hand Book for Dietetics. Rose. (Macmillan.)

Cook Books

Boston Cooking School Cook Book. Farmer. (Little.)
Boston Cook Book. Lincoln. (Little.)
Century Cook Book. Arnold. (Century.)
Food and Cookery for the Sick and Convalescent. Farmer. (Little.)
Home Science Cook Book. Lincoln and Barrows. (Whitcomb.)
New Cook Book and Marketing Guide. Parloa. (Estes.)
Practical Cooking and Serving. Hill. (Doubleday.)

Bulletins

The following is a list of desirable bulletins relating to Domestic Science, which may be obtained free by addressing the U. S. Department of Agriculture or, in some cases, the state experiment station.

Beans, Peas, and Other Legumes as Food . . . . .Farmers' Bulletin 121
Bread and Bread Making.....F. B. 389
Butter Making on the Farm.....F. B. 541
Canned Fruits, Preserves and Jellies.....F. B. 203
Care of Food in the Home.....F. B. 375
Cereal Breakfast Foods.....F. B. 249
Cheese and Its Economical Use in the Diet.....F. B. 487
Eggs and Their Uses as Food.....F. B. 128
Fish as Food.....F. B. 85
Food, Care of in the Home.....F. B. 249
Food Customs and Diet in American Homes
Bul., Office of Experiment Stations.
Food, Functions and Use.....Bul., Office of Experiment Stations.
Home Canning by One Period Cold-Pack Method.....F. B. 839
Home Canning Manual for Vegetables and Fruits—Natural Emergency Food Garden Commission 210-220 Maryland Bldg., Washington, D. C.
Food, Principles of Nutrition and Nutritive Value of.....F. B. 142
Fruit, Uses of as Food.....F. B. 293
Habit-Forming Agents.....F. B. 393
Jelly and Jelly Making.....F. B. 388
Jelly Making, Principles of.....Bul., Univ. of Ill.
Meat, Economic Use of in the Home.....F. B. 391
Meat, Market Classes and Grades of.....Ill. Bul. 147
Meat—Relative Economy, Composition and Nutritive Value of the Various Cuts of Beef.....Ill. Bul. 158
Milk, Care and Use of in the Home.....F. B. 413
Milk, Use of as Food.....F. B. 363
Mutton and Its Value in the Diet.....F. B. 526
Nuts and Their Uses as Food.....F. B. 332
Potatoes and Other Root Crops as Food.....F. B. 295
Poultry as Food.....F. B. 182
Sugar as Food.....F. B. 93
Tea, Cultivation and Manufacture in U. S.....F. B. 234
Use of Wheat Flour Substitutes in Baking.....F. B. 955
Vegetables, Canning of.....F. B. 259
Vegetables, Preparation of for the Table.....F. B. 256

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